In 1934

ELECTRICAL WEST

..... Sell

IF there is any recipe that will make business better for the electrical industry in 1934, it is "Go Out and Sell." And it applies to every branch of the business.

POWER companies want an antidote for increased taxes, downward rate revisions, and idle plants. Here it is: "Go Out and Sell."

CONTRACTORS are suffering from a shrinkage in volume of wiring business that threatens their very existence. Let them too, "Go Out and Sell" adequacy, modernization and above all, their rightful place in the electrical picture.

MANUFACTURERS and wholesalers must have volume that will turn losses into profits. They must lead in the movement to "Go Out and Sell."

RETAILERS need no urging to "Go Out and Sell."

MARKETS for electricity and electrical applications, services and appliances exist on every hand, in fact the saturation today is only 40 per cent. Business will be better for the industry in 1934 if every individual will only "Go Out and Sell."

JANUARY 1934 McGraw-Hill Co. of Calif.
Twenty-five Cents Per Copy

TK1
.E495

SAYING IT WITH SALES!

What Electrical Merchants Think of Edison's Program

From every community served by Southern California Edison Company come reports of quick, continuous buying response to the aggressive pre-Christmas drive for electric appliance sales.

Dealers have found it profitable to cooperate fully with Edison's advertising and merchandising program. Read what a few of them say at the right.

This introductory campaign—the most comprehensive in the company's history—is being followed up by a second, equal in scope and effectiveness, during January and February. Throughout the Spring, Summer, Fall and Winter there will be no relaxation of this vigorous sales effort.

Here's What They Say...

"I cannot too early commend your Company upon its new merchandising policy. It is unique in its business stimulus, cooperative in operation, and highly beneficial to the entire electrical industry."

A. C. Nygaard,
Nygaard Electric Co., Compton.

"After a careful study of your new set-up on merchandising of electrical products, I am convinced that your plan will stimulate business in this line tremendously."

W. B. Danielson, Redlands.

"We find our best methods of gaining results are to tie-in with your advertising . . . Thanking you for your 100% cooperation in your new set-up on advertising . . ."

Ruebel Electric, Alhambra.

SOUTHERN CALIFORNIA EDISON COMPANY LTD.

GIFT OF PUBLISHER JAN 10 1935

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the New ELECTRICAL WEST

for January, 1934

Volume 72—No. 1

The Editors Think Out Loud

Bound and Gagged

ON more than one occasion ELECTRICAL WEST has condemned the growing tendency of regulatory organizations to usurp the prerogatives of management in exercising regulatory functions. Elsewhere in this issue is a report of an unwarranted and unjustified example of this trend in the state of Washington.

Puget Sound Power & Light Co. has been ordered to show cause why striking reductions in expenses and salaries in its operating budget should not be made. And strangely enough, aside from the matter of executive salaries, the greatest reductions ordered are in legal and regulatory expenses and in advertising. Thus the utility is effectively bound on the one hand, and gagged on the other.

It would seem to the editors that if regulatory commissions insist upon appropriating the functions of management, they should assume the responsibilities as well. Having ruled against any appropriation for donations, they might interview committees for the policemen's or firemen's ball, and solicitors for the Community Chest. They might try to turn down gracefully the requests of newspapers for advertising. And they might attempt to placate stockholders whose dividends have been reduced or eliminated due to oppression, tax-gouging, subsidized competition and political attack.

Because utilities subjected to such injustices as this turn to the courts for protection, there are people that cry "regulation is failing." Perhaps it is, but responsibility for the failure rests with the regulators.

▼

California's Reversal

AFTER all these years! Defeated three times by an electorate convinced of its inequities and its possibilities for political bureaucracy, California's Water and Power Act has become a law. Added to Bonneville, Grand Coulee, Boulder Canyon and the other public "yardsticks" will be Kennett with its 320,000 kw. of power.

This is no time to seek for reasons for the reversal of public attitude only in so far as they might make the future more secure. Rather energies must be devoted to an endeavor to correlate this new project with the existing power supply. As in the case of all of these public undertakings, the problem will be one of rates and markets. Because immediate solutions are not now in sight is no reason to believe that they will not be found. Ingenuity and enterprise have solved tougher problems than these for the electrical industry.

▼

Ouch!

CAN this be Mr. Hearst, OUR Mr. Hearst of San Simeon Castle, whose phalanx of mouth organs all tune to the same chorus of government ownership—especially government interference with the power and light business?

When the publishers' code was under consideration and the "rugged individualism" of the press was thought by that privileged individualistic clan to be possibly, "just in case," by jeopardy of government regulation, was there a loud cry, mates? The Scripps press, the McClatchy press, the Hearst press all viewed with alarm; said, "Really now, of course we are for NRA, and all that sort of thing, but how about our Freedom of the Press? Don't you dast touch that." But Mr. Hearst hollered much more loudly than that.

Mr. Hearst's own corns were being stepped on, that time, and he let out a very loud "ouch." The "ouch" was a substantial one, indeed, for not only did it take the form of one of his customary front page editorials, but caused him to go into pocket for advertising space in several other newspapers besides. This is the very note:

(NRA has introduced, he said) "a measure of absolute State socialism . . . actually opposed to every fundamental conception of individual liberty on which democracy is based." And later, "Perhaps we will find—perhaps we have found—that the best benefit of ALL is promoted, not by socialistic despotism, but by the elemental American principles of personal liberty and individual opportunity."

Seems to us we have heard those words before, some place.

▼

Rates and Markets

DOMESTIC rates that will increase residential consumption are receiving a lot of consideration, what with Bonneville, Grand Coulee and Boulder Canyon power just over the horizon. A 6-mill low block to encourage water heating seems a surety in southern California. But up in Portland, comparison of existing rates with the schedules announced by T.V.A. brings to light some interesting data. One of our readers in that city writes:

"Around here no one disagrees with the idea that a full-use domestic customer should earn a rate of 2 cents or less. My own service (lights, appliances, refrigeration, oil burner and radio) last year, exclusive of water heating, came to 2.38 cents per kw.-hr. for 3,704 kw.-hr. Water heating added 5,444 kw.-hr. on a flat rate, figuring to .83 cents. The overall cost for all service came to 1.42 cents for 9,148 kw.-hr. On T.V.A. rates, including the low 4-mill step, the average would have been 1.04 cents. But if we should omit the 4-mill step and include water heating at 8 mills (this rate is available in this area for time-controlled service) there would be a great deal of difference between T.V.A. and my present rate for my present utilization.

"Anent your editorial regarding the average customer electrical investment per annual kilowatt-hour, I figured my investment in converting devices to be $1,900 and estimate the cost of the wiring in my home at $300 or a total of $2,200. Applying my annual use, the investment is approximately 25 cents per annual killowatt-hour, which is somewhat lower than the figure you cite. However some of my appliances are of the less expensive variety—radio, for instance. Probably the average investment per kilowatt-hour is much higher than mine, particularly for those people without water heaters, since this appliance carries a low investment charge for high annual consumption."

Two figures in this letter impress us: over 9,000 kw.-hr. per year and a $2,200 investment in utilization equipment. What a market, what a market!

—Read

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Sales of the Month » » »

Save Time! Save Work! Save Money!
Buy household appliances Now
BEFORE PRICES ADVANCE!
● Never have prices been so low nor household equipment so efficient. If you have been struggling with worn out appliances, if your kitchen and home are not as modern and convenient as you wish, take advantage of today's prices to modernize your home
Materials are increasing ... many commodity prices have advanced; but most household appliance prices have not yet increased. We advise you to buy at present low prices. Not only can you secure money-saving values today, but also better equipment than you have been offered before
Months ago we advised Portlanders to take advantage of the existing low prices on all commodities ... we repeat that you are still wise to buy what you need and can afford while retail prices remain low. You not only save money on every purchase, but have the satisfaction of knowing that by releasing more money to industries you are doing your part to speed the return of better times.
RECENT ADVANCES POINT THE WAY TO HIGHER PRICES
Raw Material Costs have Gone Up in past six months
Steel 10% Glass 15%
Copper 80% Aluminum 25%
Paint, Porcelains 10% Rubber 10%
Naturally household appliances made from these raw materials must advance in price. Retail merchants have already been notified by manufacturers that the costs on household appliances have advanced 15% to 35%. Save money by buying now before this increased manufacturing cost affects retail prices.
This advertisement is endorsed by and prepared in cooperation with Portland Chamber of Commerce
THE FIRST NATIONAL BANK
OF PORTLAND
FIFTH TO SIXTH STREET ON STARK
Eight PORTLAND OFFICES FOR YOUR CONVENIENCE
Uptown Sixth and Morrison
N.E. 42d Ave. and Sandy Blvd.
N.E. Union Ave. and Russell St.
S.E. Grand Ave. and Morrison St.
S.E. 82d Ave. and Foster Rd.
S.E. 80th Ave. and Stark St.
Eleventh Ave. and Kilpatrick St.

Banker's Advice

A timely tip from the banker—"Buy household appliances now, before prices advance," was given citizens of Portland, Ore., by the First National Bank of that city in one of its "Bringing Back Better Times" series prepared by Mary Pentland, advertising counsel. The advertisement, reproduced here, cited recent price advances in the commodities that are used in the manufacture of household appliances

Edison Stops Range Trials

In response to requests from many sources for a change in the trial range and water heater section of the Southern California Edison Co.'s new commercial program, the company on Dec. 1 announced the cancellation of the trial range and water heater plan. All other sections of the program for 1934 are in full operation and, according to W. L. Frost, vice-president in charge of sales, the results of the program thus far are gratifying.

"When we announced our new merchandising plans we stated that we had endeavored to incorporate in them all possible suggestions emanating from manufacturers' wholesalers and dealers that were practical and in the interests of co-ordinating the industry," Mr. Frost said. "We also announced that changes or additions in our plans would be made from time to time as might seem advisable in that direction.

"The trial installation plan for ranges and water heaters was intended by us as an aid to and not a primary objective in making permanent sales. Complaints have come to us from many sources that the trial range and water heater plan is proving a serious handicap to the dealers in making permanent sales. Therefore we find it necessary to discontinue the trial range and water heater plan, effective November 25."

A Reno Record

Up Reno way, where quick divorces, quicker divorcees, and still quicker marriages are made, there are about 5,000 homes, including some of those used by the "transients." To get 1,100 of the housewives of that city to attend each day of a four day cooking school, (20 per cent of the population), is something in the way of a record. To have 100 per cent cooperation between all dealers in the vicinity and the power company is another mark of distinction for such a campaign. But these two extraordinary things did happen during the Hotpoint range drive just finished in Reno last month.

Sponsored by the Nevada Contractors and Dealers Assn., assisted by the Sierra Pacific Power Co., the campaign with its cooking school was a complete success. Active in this campaign were those pictured in the photograph on page 16, plus two dealers who were unable to assemble for the picture; the Pittsburg Electric Co., of Reno, and the Robinson-McPherson Mercantile Co. of Sparks, Nev.

Contrary to the standard cooking school practice of employing the newspaper, in this instance radio station KOH was employed exclusively, and the attendance impressed everyone with the possibilities of radio as a medium for publicizing electric cooking schools.

▼

Two B. C. Firms Merge Stores

Two of the leading electrical stores in western Canada have joined forces at Victoria, B. C., with the acquiring of control of Hawkins & Hayward Ltd. by Jameson's Electrical Ltd. Hawkins & Hayward commenced business in 1904. T. W. Hawkins, founder, recently retired after long service as Alderman of his city, while his partner E. C. Hayward created a record in length of service as Reeve of the adjoining municipality of Oak Bay, retiring from publice service recently, immediately prior to his death.

Jameson's Electrical Ltd. was founded in 1931 by Robert Jameson in a section of his automobile building. The following year the electrical business was moved to separate premises on Fort street, and from a staff of four it has jumped to employing 30 persons.

The Fort street store will be closed in January, and after extensive alterations the Douglas street store of Hawkins and Hayward Ltd. will be opened under the name of Jameson's Electrical Ltd. with G. E. MacDonald as manager. Mr. MacDonald has directed the Jameson business since it started, and was previously with the B. C. Electric Railway Co. at Vancouver.

Among the new things displayed at Hales was the Kookette, which made an excellent demonstrating table, all wired for use

Hales Launches A New Idea

Always pioneers in electrical wares, Hale Bros., San Francisco department store, just before Christmas season, opened a complete floor to a new idea —an electrical exposition sales floor. The sixth floor, formerly used only for the broadcast studio of KPO, owned by it, and the radio department, was converted into a bright, attractive and interesting electrical department. Moreover, its main idea is to provide San Franciscans with a view of and an opportunity to purchase the newest, the latest, and the most complete line of electrical devices for the home available anywhere in the region.

"Electricana," the former department on the fourth floor, was moved up intact, merged with the radio department, the broadcasting studios, and the next feature is to be an all electric, all steel home, built on the roof just outside the display room. Newton Hale, son of one of the owners, has taken the department up as his own pet, and has asked the trade to supply suggestions, new devices, ideas, and sales helps. At the opening many new things were shown, among them the electric eye adapted to guard a child's crib, the Kookette (described on page 16), a history of light exhibit, a "marvascope" or stroboscopic device whose lighting pattern changed with the modulations of music on a radio, the tiny ABC washer, the Glorette—a new table stove, and many other features. Even the lighting in the store, installed by Sterling Electric Co., has been redesigned by Mr. Hale, using a Macbeth modernistic shell, inside of which is mounted a Holophane prismatic reflector. The effect is of intense light on the merchandise without surface brightness of units.

The department is in charge of C. W. Hollingsworth, who has managed the electrical department at Hales for some years.

Junior Council Cooks a Meal

Disproving the old saying that "too many cooks spoil the broth," members of the Los Angeles Junior Electric Cookery Council staged a pre-Christmas dinner on Dec. 19 in which practically every one of the more than 150 members had a hand. What a meal! Everything from soup to nuts, and every operation done electrically, from the peeling of spuds and the mixing of cake batters to the roasting and baking of roasts. The affair was combined with the installation of officers elected for the coming year. The Junior Electric Cookery Council, organized just a year ago, has functioned as an organization representing the electric range industry in conjunction with advertising and merchandising drives sponsored by the utilities of Southern California.

Junior cookers who do a major job— (left to right) Arthur W. Elliott, Gerson Ray, Orlando Hammond, Frank Norton and Arthur A. Honig

Officers installed were Orlando Hammond, of Desmond & Hammond, electrical appliance dealers, president; Louis Singleton, of Listenwalter & Gough, electrical appliance distributors, vice-president; Arthur W. Elliott, manager of domestic electrical appliance sales, Los Angeles Bureau of Power and Light, corresponding secretary; Arthur A. Honig, electric range salesman, Bureau of Power and Light, recording secretary; Frank Norton, of Norton & Norton, electrical appliance dealers, treasurer; and Gerson Ray, electric range salesman, Bureau of Power and Light, sergeant at arms.

▼

Aim at the Replacements

Intent on popularizing electric ranges in Los Angeles in the shortest possible time, the Bureau of Power and Light of Los Angeles has just announced the start of a nine-months advertising and merchandising campaign in cooperation with dealers of the city.

"Buy a kitchen companion, not 'just another cook stove'," is the theme of the drive.

Free wiring and installation of all electric ranges connected on the municipal system's lines is featured in all copy as an inducement to immediate purchases, as is also the fact that electric range users automatically obtain a low rate on electric current which approximates about half that charged for household lighting.

Halftone cuts picturing actual electric range users in culinary poses, accompanied by testimonial text quoting these owners, authenticate and emphasize variations of the campaign's theme with claims of greater "convenience." "comfort," "cleanliness," "economy," and "safety" as attributes of electric cookery.

The current drive is a follow-up on an expanded scale of the campaigns undertaken with dealer cooperation in 1931-32 and 1932-33, with dealers tied in even more closely for 1933-34 than heretofore.

Authorization of a budget to cover the cost of making effective a completely coordinated plan prepared for 1933-34 by the Dan B. Miner Company, was strongly influenced by the showing made last year and the year before that.

Media, all local, to be employed in the new drive for electric range sales embraces daily newspapers, community papers, magazines, outdoor display, direct mail, tire covers, dealer displays and a variety of material, including an especially prepared monthly bulletin "The Electric Ranger," to keep dealers and their salesmen thoroughly posted on the progress of the campaign and methods found most effective throughout the city.

The newspaper schedule is directed at the replacement market represented by women who will buy new ranges within the next year.

A small adv. used in community papers, which combines useful hints, recipes, and a strong sales point in favor of electrical cooking, as well as the wiring offer

Ann Martin's Kitchen Hints

Released by Home Economics Service Your City-Owned Bureau of Power and Light

BEFORE BAKING POTATOES grease the skins. The skins will be tenderer.

●

WHEN SUGAR LUMPS place it in your electric refrigerator a day or two.

●

ORANGE BREAD

¼ cup orange juice; ¼ cup syrup from orange peel; 1 cup candied orange peel; 4 cups flour; 3 tsps. baking powder; ½ tsp. salt; ½ cup sugar; ¼ cup shortening; 1 cup milk; 2 whole eggs

Sift dry ingredients together; cut in shortening; add milk, orange juice and syrup from orange peel to well-beaten eggs; stir into dry ingredients; stir in candied orange peel. Make 1 large or 2 small loaves. Bake fifty minutes in moderate oven (350 degrees).

●

DO YOU KNOW

...that children are safe from "match-danger" in an electric kitchen?

...that your electric range will be wired free?

Government Credit For T.V.A. Appliances

Government financing of electrical appliance sales in the Tennessee Valley rumored for some time, has become a reality with the establishment of a Delaware corporation known as the Electric Home and Farm Authority, Inc., with a capitalization of $1,000,000 and with all stock owned by the National Recovery Administration. Formation of the corporation was directed in an executive order signed by President Roosevelt. Credit will be extended to it up to $10,000,000 by the R.F.C.

Purposes of E.H.F.A. as outlined by David Lilienthal, member of T.V.A., are as follows:

"The objective of this program is a wider and greatly increased use of electricity in the homes and on the farms in the seven states of the Tennessee Valley. In order to carry out the program there must be a broadscale distribution of very-low-cost-standard-quality electricity-using appliances, and concurrently a revision downward of electric rates. The new agency is based on a cooperative program in which the federal government, the electric utilities, both publicly and privately owned, the electric manufacturing industry and dealers will participate.

"Through the Electric Home and Farm Authority, it is proposed that the federal government participate in this program in the following way:

"1. By assisting in financing the consumer in purchasing standard electric equipment at very low prices.

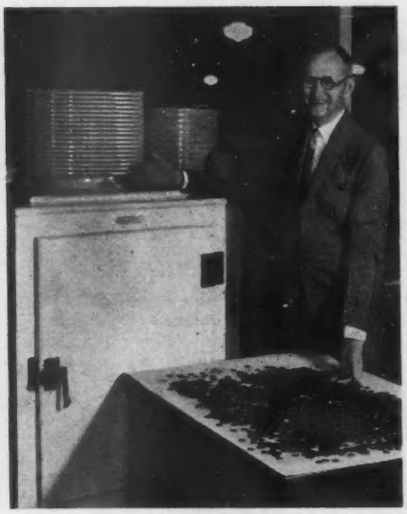
"2. By securing reductions in electric rates; by agreement with the utilities, public and privately owned, so as to make use of this equipment feasible for the average householder and farmer.

"3. By engaging in educational work and research to further lower the cost of electric equipment and to make it better adapted to the needs of the average home and farm.

"Electric appliances are now sold by regular dealers for the manufacturers, by hardware and department stores and by electric utilities. The program does not contemplate a disruption of these outlets. Each dealer will, of course, continue to exhibit and sell any line of electric appliance he desires, but he will also have an opportunity to sell the low-priced appliances which this program is expected to create."

▼

¶**Thermador Electrical** Manufacturing Co., 116 Llewellyn St., Los Angeles, makers of electric water and air heaters, has appointed the following representatives in the East and Northwest: F. H. Patterson, 9201, Boleyn St., Detroit, for Michigan and Ohio: John G. Kelly, Inc., 210 E. 45th St., New York City, for New York and New England; David D. Bleman, Mt. Ephriam, N. J., for New Jersey, Pennsylvania, and Delaware; The Noland Co., Newport News, Va., the Atlantic seven states; H. P. French, Kirkwood, Mo., Missouri and Kansas; and J. D. Sparks, Seattle, Washington and Oregon.



Ellis Lawrence, manager of the display store George Belsey Co. owns in the Broadway Department Store, Los Angeles, was glad to count out the 2,800 pennies brought into him by a woman as down payment on a large refrigerator. "Now it will pay for itself," she said with full confidence, and had the refrigerator delivered. That it is doing so in food saved and quantity purchases has given proof to the advertised claim of the refrigeration industry

▼

Hardware Chain Formed

Amalgamation of a chain of one hundred retail hardware stores in British Columbia under the name of Sunset Stores has now been completed. Formation of the group was undertaken by McLennan McFeely & Prior Ltd., one of the oldest established and largest wholesale hardware and electrical jobbing firms in Western Canada.

In conjunction with this new organization McLennan McFeely & Prior Ltd. have established retail stores on the entire ground floors of their wholesale warehouses at Vancouver and Victoria. The firm also owns and operates retail stores at Kelowna, Kamloops, and New Westminster.

In addition to general hardware lines the new group of Sunset Stores will carry electrical appliances and fittings and radio. Sales of radio and major appliances will be financed privately within the organization when necessary, it is stated. The units will continue as individual stores independently owned but will be united for buying, advertising, and merchandising purposes.

McLennan McFeely & Prior Ltd. will continue as formerly in the wholesale field, while the retail end of the business will operate as a separate department and conform to the general ethics of the Sunset group.

▼

¶**E. F. Hauch** recently opened the Sierra Wholesale Electric Co. at 1228 H St., Fresno, Calif.

"Refrigeration Prospects Bright"

That the electric refrigeration industry enters the year 1934 with the brightest prospects in its history, is the opinion expressed by James E. Davidson, executive chairman, Electric Refrigeration Bureau, in a statement in which he reviews the past year's activities of the Bureau and the part they have played in the industry's conspicuous record of sales. Mr. Davidson said:

"The electric refrigeration industry enters the new year under conditions which offer a sharp contrast to those which marked the beginning of 1933. Yet including a conservative estimate for December, the sales for the year reached the approximate total of 1,100,000 units, 150,000 more than in the previous peak year, 1931.

"With the industry entering the new year under such headway, and with the saturation even now approximately only about 24 per cent, it would seem that the prospects of a new record in 1934 are extremely bright."

Mr. Davidson goes on to recall the activities of the National Refrigeration Bureau during 1933, its financial aid from the utilities, the participation by utility companies in personnel and staffing of bureau activities, the meetings and shows held despite dark outlook at the beginning of the year, the "Legion of Honor" contest, in which the West figured prominently, refrigeration week in Sept. and Oct., the contest between cities for the best refrigeration show (again western cities were winners in this), and the final Christmas window display contest, results of which are not yet available.

▼

Dealer Goes To Market

J. R. Davidson, of the Davidson Electric Co., electrical contractor and dealer of Portland, has taken a revolutionary step. Heretofore, his business has been conducted along the ordinary lines—a typical electrical contractor's merchandise store, with shop and place from which to work the contracting end of the business. He has closed this place and gone into the new million dollar Public Market.

There, you will find him located on the mezzanine floor in a space exactly 11 by 17 ft. But it is amazing the amount of electrical merchandise that can be displayed on 187 sq. ft. with the proper arrangement of shelves and counters. It even leaves room for a little office in the back, partitioned off next to the window.

For shop and the storage of the heavier contractor stock he has rented a larger space in one of the rooms in an upper, set-back floor of the building, rented for such purposes.

From the little store below, however, all the contracting business will be carried on.

Why not take the Easiest Way?

Everything indicates that again this year more people will buy Frigidaire than any other electric refrigerator.

And therein lies a thought.

If you sell Frigidaire you are going to be selling it to people who already have a marked preference for it—which means easier sales, less sales expense. If you are not selling Frigidaire a lot of your sales effort will be spent on prospects whose opinions are opposed to yours—which means harder sales, and higher selling costs.

Then, of course, there are the greater profit opportunities offered by the completeness of the Frigidaire line—household refrigerators, milk cooling, water cooling, commercial coils and compressors, beer and bar cooling equipment, and Frigidaire Air Conditioners.

And we don't stop with giving you a line of fast-selling, profit-producing products. For we fully appreciate the value of the utility company in Frigidaire's selling set-up. And from experience we understand the utility company's needs—including the needs of merchandise profit and extra load to meet today's conditions.

We go the limit in helping you sell Frigidaire. Our Individualized Sales Service includes practical sales plans which are individually worked out for you. We'll be glad to answer your questions about the Frigidaire franchise. Public Utilities Division, Frigidaire Corporation, Subsidiary of General Motors Corporation, Dayton, O.

Frigidaire

A GENERAL MOTORS VALUE

C. A. Rowley Asks—

"Why Not a Bargain Rate for Electric Heat

During Off-Peak Hours?"

Editor Electrical West:

Inasmuch as you invite frankness and direct expression in your new publishing form. I am going to try to set down for your personal consideration a few thoughts that have been lurking in the back of my mind for some months.

They have to do with both BUILDING and SELLING. They have to do more specifically with electrical heating and cooking.

Some utilities seem to have decided that it's "whole hog or none" as regards electric heat. In other words, they won't give a combination domestic rate unless the customer heats his house **principally** by electricity. They seem to have forgotten that electric heat is still in the **pioneer** stage and that would-be users have to be sold more or less by trial.

Most people become good swimmers through a course of lessons—generally they don't jump into water over their depth and come up smiling.

So it is with electric heat. Most people prefer to acquire it by easy stages. If the first lessons are expensive they are not likely to finish the course. And if they take the whole course at one sitting there is grave danger that they will be water shy the rest of their lives.

The burden of all this is that if the utilities really want a heating load, if they are not afraid of it because of its high load factor, then they must do something to make it easier for the consumer to **learn** to **like it.**

This takes us from combination rates to kw.-hr. rates.

From my personal experience with electric heat in my own home over a period of 4 or 5 years I have reached certain conclusions as follows:

1. Electric heat is the cleanest, most healthful, most flexible and most satisfying heat extant.
2. At 2 cents per kw.-hr. it cannot compete with other popular fuels.
3. It is not the kw.-hr. consumed during the evening hours that breaks the consumer's heart. Rather it is the long hours of operation from sunup to sunset during the really cold season.
4. Until something is done to reduce the operating expense, electric heat will never become popular with the mass of small home owners well able to afford the initial investment.

What then is the future of electric heat in the average home?

Heat insulation, we are told. But think of the tens of thousands of existing houses without insulation. And have you ever seen the questioning look in a prospect's eyes when you suggest insulation in connection with electric heat? Insulation is real economy in any man's house, but to mention it when trying to sell electric heat is usually to arouse the prospect's suspicions that there must be something wrong with your product.

No, heat insulation is not the real answer.

Then along comes thermostatic control, a necessary adjunct to the comfort and economy of any heating system. But automatic control can't do the job even with the help of insulation, hermetically sealed doors and windows, and all the other refinements.

So long as electric heat is so precious that it has to be hedged 'round with every conceivable safeguard to prevent its escape, it will be a long time finding its rightful place in the ordinary home.

Up to now there has been a pretty good business with the people who can afford "the best at any cost," but as time goes on our claim will be "high-graded" out and we will have to begin work on the tailings. This time isn't far distant, so we'd better begin thinking.

Right on the Peak

I have always heard that the utilities like the range load because it helps to fill the daylight valleys in the load curve. Up 'til supper time this is no doubt true. But, personally, I have never seen such a curve showing a very prominent valley after 5 p.m. I may be wrong, but if our range operation is anything like normal or average, then the electric range throughout any system piles its heaviest demand of the 24 hours onto the evening peak. Wherefore then the hysteria that has occasionally been displayed toward acquiring "range load regardless?"

All this apropos of my **big idea.**

If daylight kilowatt-hours are as desirable as we are told they are, and there can be no question about it, why not make use of the agency already set up to deliver the goods?

Besides the daylight kilowatt-hours available in electrically heated homes, which of course carry a corresponding evening peak load, I have in mind a tremendous potential load in the form of thousands of small offices and stores scattered throughout every city and town up and down the coast. Ninety-nine per cent of this load is strictly **daylight,** from 8 a.m. to 6 p.m.

My idea is to connect it through a time switch and separate meter, limiting its use absolutely to the hours mentioned. If this market hasn't got the range market backed off the map, then I AM crazy. And, if the power companies couldn't afford to sell this energy for 1 cent or less, then I apoligize for suggesting it.

I know there is a counter argument of "100 per cent demand factor" and the other bugaboos. And in return I want to point out that there seems to be idle generating and distributing facilities up to the peak capacity of the plant already available for this load.

As for the residence heating which is bound to overlap (as does the range load) onto the evening peak, well, here is where I betray what a nut I am.

The theory outlined below is based on the belief that we are all more or less in the bargain hunting class. When a thing is real cheap we buy it whether we need it or not.

An Off-Peak Bargain

So I would put the residence combination load on a duplex rate—one rate for peak load periods and another (a real bargain rate) for off-peak periods. I would make it entirely optional with the user how much he used his equipment during either period. But as a curb to extravagance during peak load hours, I would provide him with **visible notice** that he was using expensive "juice." If he persists in using it, O.K.; he **knows** he has to pay extra. If he wants to be Scotchy, he can close off the unnecessary rooms and confine his heat to limited quarters. The evening meal might be planned a little ahead of the "zero hour" and other little touches of economy could be worked out to the householders' and utilities' mutual advantage.

This plan again involves a time switch and two meters are needed. At 6 p.m. the load is automatically thrown onto the peak or **high rate** meter and a **red light,** prominently located, flashes on and continues to burn as a visible notice to the consumer that he is paying a premium for his service. At some appropriate hour after the peak is past, the load is automatically transferred back to the **low rate** or off-peak meter and a green light tells the owner he is again at the bargain counter until 6 p.m. the following day.

There you are—wild ideas and probably full of holes—but I know I can unburden them to you for what they are worth, and that if there is anything at all worth while you can pick it out.

Art Rowley,
C. A. Rowley Co., Pasadena, Calif.

Editors note: Off-peak water heating has proved an effective answer to water heating costs. This idea of Mr. Rowley's deserves a real consideration. What do you think about it?

Short . . .

But Right to the Point of Sales

●

¶**Lucky Thirteenth**—Superstition was defied by the city of Winnipeg hydro electric system when it capitalized on the tradition of misfortune surrounding Friday, the 13th. Merchandising officials of the company decided to reverse the usual story and instead selected this date for the presentation of what it described as thirteen "Extra Lucky Bargains." The advertisement was headed with a reproduction of a date sheet torn from a calendar, while across the top was an arrow pointing to this date, and reading "Your Lucky Day." A black cat connected this heading with the advertisement proper. The thirteen specials featured included a range, kitchen helper, washer and ironer, water heater, refrigerator, lamps, fires, heaters, irons, toasters, and auto engine heaters, as well as a table of miscellaneous bargains. From a merchandising viewpoint the event is reported to have been a complete success, being responsible for moving a large volume of goods.

▼

¶**Washers and Ironers** on a rental basis in apartment houses in San Francisco and East Bay cities have been placed by E. L. Kennedy Washer Service, of 2402 Webster St., Oakland. A washer and ironer will serve at least half a dozen tenants in each apartment house and in some instances as many as 25 or 30 families. A meter device is installed on the appliance in which the tenant with a small washing may deposit a dime, or for a larger washing a quarter. The same is true in the operation of ironers. The advantage to the apartment dwellers is the use of up-to-date laundry equipment without any investment and the fact that the servicing company keeps the equipment in fine shape.

▼

¶**Grocers** were tied in on the refrigeration drive of the Electric Refrigeration Bureau in San Diego, for which its manager, Clark Chamberlain, received a national honor. Grocery stores not only gathered in entries for the essay contests but offered refrigeration specials on cards especially prepared for the purpose. The cards were arranged so that grocers merely had to letter in the price of the item on special sale. These were specials in perishables which, bought in quantities and kept in an electric refrigerator, would net the housewife a real saving.

▼

¶**Twins Demonstrate Ironers** — Two girls, twins 12 years old, using an ironer so successfully that all doubt as to ease of operation is allayed, made quite a hit at two county fairs sponsored by department stores in Turlock and Stockton, Calif. Crescent Department Store, of Turlock, employed the twins for the Turlock carnival. At Stockton the twins again performed on the ironer for a Stockton drygoods company. The feature was suggested by J. F. Stevens, Jr., advertising manager of Apex-Rotarex Co. in Oakland.

W. J. BAUER

¶**Amateur Business Important**:—Different views are held as to the importance of the amateur's in the radio parts and accessory trade. W. J. Bauer, of Butler's Electric Specialty Co., San Jose, Calif., electrical distributor majoring in radio parts, holds the view that the amateurs are more than good prospects to cultivate. To know these amateurs, belong to their organizations, listen in on their discussions over the air, he considers essential to keeping abreast of the newest things coming up in radio. Those fellows, he says, are always a step ahead of everybody else, and if you become one of conversant with the possibilities of new merchandise almost as soon as it is on them and help them, you will be pretty the market. As far as their buying power goes, it is in itself considerable. They are all privileged to buy at Amateur Relay League prices, if they belong to that organization.

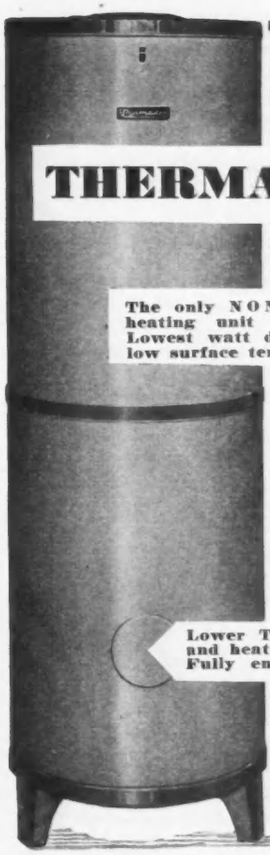
▼

¶**Use Replacement Record**—Information regarding the ratio of replacement parts to units in use in that town plays an important part in selling electric refrigerators at the Western Utilities Stores Co., Greeley, Colo. A permanent record of parts replaced is kept along with a record of units sold and current comparisons made in emphasizing the durability of the company's line. "We find that there is a growing trend toward increased interest in service and durability," manager J. E. Looney said. "Consequently, definite information concerning local service tests is invaluable in selling new boxes. There have been many instances where the fact that out of 180 boxes in use in Greeley we have had only 14 replacement calls has cinched a sale."

¶**Dealers Can Get Too Big**:—N. J. Etienne, of the Chanslor & Lyon Stores, Inc., San Francisco, is inclined to look askance upon the dealer who tries to secure large volume sales by employing salesmen indiscriminately to drum up business from door to door. He maintains, first, that the man today calling himself a salesman is either not one or else he has an idea of some way of making money out of the situation that is not going to do the dealer's reputation any good. Second, this is not the time for the dealer to expect to lay back and direct, and attempt to make his profit out of a percentage derived from the efforts of a large number of salesmen. He has to get into the game himself more earnestly than he has in past years. In his opinion, the most profitable dealer, from the distributor's standpoint, is very apt to be the conscientious, hard-working fellow with perhaps no salesmen aside from himself.

▼

¶**When the Wife Watches the Credits**—E. L. McDonnell, of the California Electric Supply Co., San Francisco, says that he has noticed one thing characteristic of these times. In a great many cases it has been necessary for the dealer's wife to come in and take charge of the store. In almost all cases where this move has been made it has not only worked out to the betterment of the dealer's own credit, but the woman has been more active and successful in collecting the money due them than the husband had been before.



Outstanding Developments in the *New*

THERMADOR

Everhot WATER HEATER

The only NON LIMING heating unit ever made. Lowest watt density with low surface temperature.

Watchman Thermostat—fool-proof and trouble proof. There is no more dependable heater built. 18 years experience built into it.

Lower Thermostat and heating element. Fully enclosed . . . trouble proof.

WRITE FOR BULLETIN

116 Llewellyn St., Los Angeles, Cal.

Thermador Elec'l Mfg. Co.

Powers Organizes Philco Distributors

Ira F. Powers, of the Ira F. Powers Furniture Co., Portland, recently organized the Philco Distributors of Oregon, which succeeds the former Philco Radio Distributors. Mr. Powers is president of the new organization; H. D. Hansen, vice-president and sales manager, L. D. Hewitt, sales representative; Fred Hoesly, service manager and R. S. Morris, superintendent. Three new salesmen will also be added.

The warehouse and offices have been moved to the Ira F. Powers Furniture Co. building on the east side of the river at East 3d and Davis Sts. Ample quarters are provided here, a significant feature of which is the large display room, approximately 50 by 100 ft., formerly an auditorium. This has been arranged in an effective way to show radio sets under home conditions in booths arranged and furnished as living rooms. Similar provision is made for the display of refrigerators. Later, ranges and washing machines will be shown, for it is the company's intention to become distributors for a complete line of household electrical appliances.

This display room is used to show the lines effectively to the dealer trade and also for the use of local dealers as a place to bring customers to see the complete line. It will eventually become a veritable exposition of electrical appliances.

▼

¶ **Walter J. Epstein,** manager of the radio department of the Emporium, was elected president of Pacific Radio Trade Assn. at its annual meeting not long ago. His appointment marks a deviation from the policy of the association which has previously been headed by distributors. This places a dealer in the key position of the Radio Trade Assn.

▼

¶ **The Alvarez Radio Electric** Service was recently opened as a radio and electric shop at 3618 East First St., in the Spanish center of Los Angeles. It is operated by A. Alvarez whose cards indicate that he is reaching the Spanish-speaking people of the territory. The cards read "Radios De Todas Marcas" — "Reparacion de Radios y Toda Clase de Aparotos Electricos. Muebles y Maquinas de Lavar en Abonos Faciles."

▼

¶ **A range trial** plan in the territory of the El Paso Electric Co. is making work for electrical contractors in that area. Clyde Lunsford, city electrical inspector, says he is busier than he has been for years and every licensed electrician in the city is at work as a result. The company's plan includes both ranges and water heaters on a trial basis.

▼

¶ **Headed by Hugh McCulloch,** a lighting squad selling Renu-a-lites has been making a tour of the various districts of Southern Sierras Power Co. with excellent success. Large numbers of these units have been sold.

H. D. Hansen, vice-president and sales manager, Philco Distributors of Oregon, Inc.

▼

¶ **The Nanaimo Light, Power & Heating Co.,** has now moved its offices and show rooms to new premises at Wallace Street, Nanaimo, B. C. The change was necessary as a result in development, not only of the company's administrative office, but also with a view to providing increased showroom facilities, according to W. McDonald, manager.

▼

¶ **Quirey-Ball** Manufacturing Co., 557 Market St., San Francisco, have brought out a new fan type electric heater, named the Q. B. Electric Heater, built in 1½ kw., 3 kw. and 6 kw. sizes, with a special line for wall insertion installation.

▼

¶ **An additional store** has been opened by the Pat Mfg. Co., dealers in washing machines, vacuum cleaners and refrigerators, at 5320 West Adams Blvd., Los Angeles, following its recent move to a new store at 1225 North Highland Ave., Hollywood. A complete service department is maintained at each store.

▼

Rooting for More Sales

H. H. Courtright, president and manager, Valley Electrical Supply Co., Fresno, left, and John Busey, sales manager, appliance division, Merchandise Department, General Electric Co., Bridgeport, have not gone collegiate as this picture might indicate. They were both merely classed as freshmen at the recent General Electric distributor's convention at Cleveland. Since he left the Pacific Coast for the East several years ago, things seem to have happened to John Busey's hair.

¶ **George Spottiswood,** inspector in charge of appliance sales of the San Francisco Department of Electricity, was instrumental in stopping the dumping of a large quantity of unapproved electrical appliances which were shipped into San Francisco to be included in the sale of a bankrupt stock of a local concern.

▼

¶ **Ernest Ingold,** known throughout northern California as the former distributor of the Atwater Kent radio, past president of the San Francisco Electrical Development League, and for two years retired from the electrical business, recently purchased a partnership in the Chevrolet factory sales branch on Van Ness Ave., San Francisco.

▼

¶ **T. Schleuter,** long a figure in the washing machine distribution picture in the West, has joined the San Francisco district of General Electric Supply Corp., in charge of its home laundry equipment and the sale of vacuum cleaners. Mr. Schleuter was manager of the California Maytag organization in 1920,—'21, and later sales manager of Coffield Washer Co. He joined General Electric at Bridgeport in 1932 and has returned now to the coast in charge of this activity.

▼

¶ **Hadicke, Redd & Co.,** successors to Lacy L. Redd & Co., have taken over the distribution of Sparton radios and refrigerators in northern California. R. M. Baird, many years with the Victor Co., is in charge of this department.

▼

¶ **"Electric Steam Sterilization** and Water Heating in the Dairy," is a comprehensive study of the subject made by the National Rural Electric Project, of College Park, Md., and is available in pamphlet form from that organization.

▼

¶ **A whole series** of electric cooking classes have been conducted throughout the territory of The Southern Sierras Power Co. by Carlotta Garrison, home economist of the company. Particular success was had in demonstrations of cooking in the various high schools throughout the territory.

▼

¶ **F. B Nightingale,** illuminating engineer, well known in southern California, has designed a number of unique garden lighting units as well as other standard lighting equipment which he is manufacturing under the name of Kim Mfg. Co. A catalog was recently issued by him showing all of the types of equipment and its use.

▼

¶ **Barbara Worth Hotel,** famous hostelry of El Centro in the Imperial Valley of California, recently installed 80 hp. of air conditioning to cool 85 rooms. This followed trial installations of individual room units, and replaces the old evaporation system which failed to do its full duty in the hot climate of that region.

About Folks in the

Selling Game

¶**Edward F. "Jerry" Carew,** lighting specialist for the San Francisco division of the General Electric Supply Corp., died in San Francisco Dec. 3. Born and educated in Peterboro, Canada, Mr. Carew joined the Canadian General Electric Co. for whom he became the Vancouver manager of the illuminating department. He came to San Francisco in May, 1925, joining the Lighting Bureau of the Pacific Gas and Electric Co. He left that position in May, 1927, to accept the position which he held at the time of his death.

▼

¶**Fay Newsome,** home economist with Listenwalter & Gough, Los Angeles distributors of Kelvinator, has set up an organization of seven dealer home economists who carry on their work under her supervision. She makes monthly visits to each one in turn. Some months the department concentrates on home demonstrations and other months on store demonstrations.

▼

¶**H. R. Curtiss,** San Francisco distributor, has become northern California agent for the Leonard refrigerator. This, in addition to the Zenith line of radios, will be concentrated upon by this firm.

▼

¶**A. F. Kramer,** well known in appliance merchandising in the San Joaquin valley, has been appointed manager of the home appliance department of Radin & Kamp, Fresno department store. The department under Mr. Kramer handles refrigerators, ranges, washers, ironers, heaters and small appliances. Mr. Kramer was formerly with the Valley Electrical Supply Co., of Fresno, and later with L. G. Jeffries, Westinghouse appliance dealer.

▼

¶**W. H. Mayhew,** Safety Swivel Mfg. Co., Los Angeles, has announced the appointment of Leonard A. Hobbs as northern California representative for his line of safety swivel current taps and appliance plugs

▼

¶**Sydney E. Wilson** has been appointed British Columbia manager for the Maytag Company Limited, and has arrived in Vancouver from Winnipeg to assume his new duties. He was seven years with the Maytag organization in the Manitoba city, using it as his headquarters for the last few years while acting as the special travelling representative in the prairie provinces. Mr. Wilson's offices are in the Kent Piano House Building, 339 West Hastings St., Vancouver.

L. J. BREUNER F. L. ROBINSON W. K. GLASBY

Appliance Society Officers Named

Practically complete organization of the Electric Appliance Society of Northern California has been announced by L. J. Breuner, John Breuner Co., president. At present, under the parent organization there are two units, the San Francisco and the Eastbay, with others in formation throughout northern California. Officers and directors of each group were announced by Mr. Breuner as follows:

Electric Appliance Society of Northern California—Officers: L. J. Breuner, John Breuner Co., president; Newton J. Hale, Hale Bros., vice-president; H. M. Crawford, Pacific Gas and Electric Co., secretary; S. W. Newman, Chas. Brown & Sons, treasurer; B. W. Reynolds, P.G. & E. Co., promotional director.

Directors: J. A. Werner, Dohrmann Commercial Co.; R. P. Connally, The Emporium; Edward Lachman, Lachman Bros.; Frank K. Jackson, Jackson Furniture Co.; E. C. Lipman, H. C. Capwell Co.; H. A. Saxe, Sterling Furniture Co.; Philip Harris, Redlick Newman Co.; I. Shemansky, Eastern Outfitting Co.; J. O. Niswonger, O'Connor Moffatt & Co.; Carlton Bryan, Maxwell Hardware Co.; T. W. Sullivan, Capwell Sullivan & Furth; L. W. Hink, J. F. Hink & Son.; G. B. Schuyler, Apex Rotarex Manufacturing Co.; R. G. Hutchinson, Frigidaire Corp.; George Watson, Manning Bowman & Co.; A. H. Meyer, Leo J. Meyberg Co.; H. E. Caygill, Eureka Vacuum Cleaner Co.; A. H. Nicoll, Graybar Electric Co.; D. E. Harris, General Electric Supply Co.; R. J. Holterman, Westinghouse Electric Supply Co.

San Francisco Unit—Officers: W. K. Glasby, Schwabacher Frey Co., president; J. T. Templeton, Colvin-Templeton Co., vice-president; Graydon A. Milton, P.G. and E. Co., secretary-treasurer.

Directors: Roy Hurd, Hale Bros.; H. B. Rector, Electric Appliances Inc.; Clyde L. Chamblin, California Electric Construction Co.; Frank Talcott, Pacific Gas and Electric Co.; M. G. Sues, Leo J. Meyberg Co.; R. F. McDonald, Westinghouse Electric Supply Co.; Roy Kimberlan, Graybar Electric Co.; and more are to be added.

Eastbay Unit—Officers: Frank L. Robinson, Electric Appliances Inc., president; Larry B. Quinby, John Breuner Co., vice-president; Ernest W. Kimmell, P.G.andE. Co., secty.; R. R. Deener, Capwell Sullivan & Furth; W. H. Schmidtt, H. C. Capwell Co.; Julian Carash, J. F. Hink & Son; Eugene Elliot, Jackson Furniture Co.; M. S. King, Colvin-Templeton Co.; Fred Stephens, Apex Rotarex Manufacturing Co.; B. C. White, White Electric Co.; R. J. Collins, Diamond Electric Co.; S. Lion, Kahn's; E. L. Buttner, Scott Buttner Co.; B. Griffin, Maxwell Hardware Co.; J. S. Byrne, Maxwell Hardware Co.

The society conducted its first and very successful Christmas cooperative campaign during December, and is planning campaigns during the entire year 1934.

The Bellah Pearce Electric Refrigerator Shop is the new firm taken over by A. G. Bellah and H. L. Pearce at 135 North Greenleaf Ave., Whittier, Calif. The firm formerly operated as Ford Bros. Radio Co. and the present owners are featuring electrical appliances and refrigerators.

▼

¶**Electrical Supplies Distributing Co.,** San Diego, has been appointed distributor for Telechron electric clocks in the San Diego territory.

▼

¶**Ross Campbell** has been placed in charge of sales of electrical laundry equipment by the General Electric Supply Corp. in San Diego for San Diego, Orange and Imperial Counties.

▼

¶**Gilbert Trosper,** lighting salesman, Pacific Gas and Electric Co., was recently transferred from Marin County and the Northbay Division to San Francisco Division. Bill Hanbridge, of the San Francisco Division, was transferred to the North Bay.

▼

¶**Hexacon Electric Appliance Corp.,** of Roselle Park, N.J., manufacturers of electric soldering irons, has announced the appointment of Omer Cox Co., 140 Spear St., San Francisco, as its representative in central and northern California. The announcement was made by A. L. Johnson, of the Hexacon Co.

▼

¶**Automatic Washer Co., Newton, Iowa,** announces the appointment of the Graham-Reynolds Electric Co., of Los Angeles, as distributors for Automatic washers and ironers in southern California.

▼

¶**O. W. Coombs,** manufacturers' representative with headquarters at 1426 Maple Ave., Los Angeles, has been appointed southern California representative for the National Electric Appliance Corp., Bridgeport, Conn. He will handle the complete line of the company's cord sets and wiring devices.

▼

¶**Cords Wholesale Electrical Supply Co.,** is a new wholesale house established recently at 938 Maple Ave., Los Angeles. Bernard Hoke, well known in Southern California electrical circles, is directing its activities.

New model "Quality" electric range equipped with Chromalox heating units.

Montgomery Brothers Adds to Sales Force

With its appointment as exclusive Pacific Coast representative for the Edwin L. Wiegand Co.'s line of Chromalox heating units, the firm of Montgomery Brothers, with offices in San Francisco, Los Angeles, Seattle and Portland, is increasing its sales organization, according to W. Ray Montgomery. Up until recently Montgomery Brothers represented the the line in all Pacific Coast states except California.

Three new men have joined the company's sales organization. They include C. Johnson and A. B. Conant, who will work out of the San Francisco office, and D. Y. Robinson, who will make the Portland office his headquarters. In addition to Wiegand heating units, Montgomery Brothers are representatives on the Pacific Coast for the Chromalox-equipped "Quality" electric ranges, manufactured by the Roberts & Mander Stove Co., of Philadelphia.

▼

¶ **Washing Machine Service** Supply Co., manufacturers and distributors of replacement repair parts for washing machines, has issued a new catalog and wringer roll and roll accessory price list, according to William Vogel, president.

▼

¶ **"Electro-Gram"** was the name selected out of seventeen entries as the winning title for the bulletin now being issued monthly by The Electric Club of Portland, Ore. The winning name was submitted by L. W. Going, chief electrical inspector of the City of Portland.2 J. B. Buman, of the Northwestern Electric Co., is president of the club, which seems to have given a new lease of life to the electrical industry in Portland. Phil B. Perkins is editor, Berkeley Snow and Clinton Hurd, associate editors, of the little publication. Each month's cover features on member's business interests with cartoons and sales talks.

New Lines *You Can Sell*

Glove Dryer

Westinghouse Electric & Mfg. Co., East Pittsburgh, has developed a handy drier for drying silk hose, gloves, lingerie, and the like. The device operates at 115 volts and is rated at 160 watts. It does not radioate excessive heat but instead produces a penetrating warmth from a low-voltage heating element which is wrapped in asbestos and shielded by a wire screen. A wire rack on the top slides up or down to adjust for various sized articles.—Electrical West, Jan., 1934.

▼

Restaurant Broiler

Silex Co., Hartford, Conn., has placed on the market a new "Hi-Speed" broiler for backbar and restaurant counter service. In addition, the hot plate may be used for frying. The broiler is equipped with a 1,500-watt element employing the principle of reflected heat. The heating unit is self-cleaning. The griddle is equipped with grooves which carry grease and juice into the corners away from the broiling heat. The body is stainless steel with chromium-plated brass and aluminum fittings. It is equipped with automatic heat control.- -Electrical West, Jan., 1934.

▼

Popular Vacuum Cleaner

The P. A. Geier Co., Cleveland, Ohio, announces the addition to its line of vacuum cleaners of the "Royal Princess," Model 61, which incorporates the revolving brush principle. Features include full size motor, wide nozzle, double rear wheels for balance and tilting and wide hinged-opening dust bag. List price is $39.50.—Electrical West, Jan., 1934.

▼

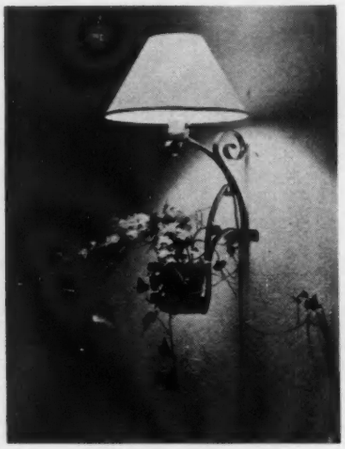
Simple Control Washer

One Minute Washer Co., Newton, Iowa, has announced the addition of Model 270 to its line of washing machines. This new model is equipped with a self-adjusting wringer which is entirely controlled by the top control bar which is the sole operating lever. The washer is equipped with an oversize porcelain enameled tub and an aluminum agitator.—Electrical West, Jan., 1934.

▼

Apartment Range

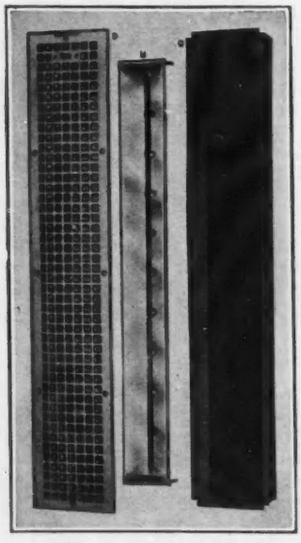
General Electric Co., Specialty Appliance Sales Department, Cleveland, Ohio, announces a new electric range, the "Modernette," which can be built into the apartment house kitchen wall. It occupies a floor space of 18 in. by 22 in. and has an overall height of 46⅞ in. It is equipped with three high-speed Calrod surface units and two interchangeable open coil oven units. It has all of the features of the most modern and up-to-date electric ranges.—Electrical West, Jan., 1934.



"Pin-It-Up" Lamp

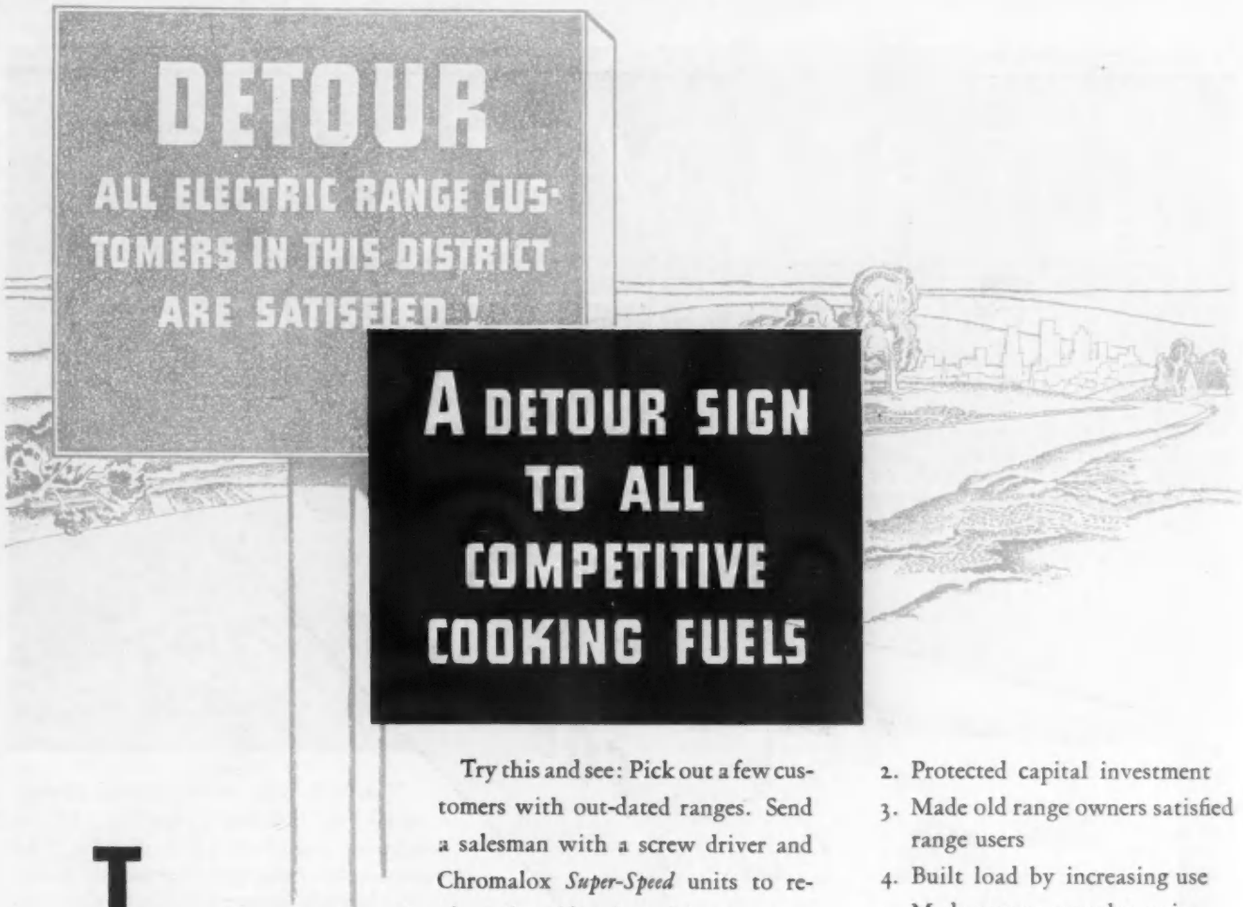
Railley Corp , Cleveland, Ohio, has developed the "Pin-It-Up" lamp with a flowerpot bracket as the newest item for decortative home lighting. The lamp hangs to the wall by means of a small hole in the back of the bracket which hooks onto a push-pin. This new lamp is designed to capitalize on the discovery that artificial light promotes plant growth and is expected to increase the vogue for living plants in the house.—Electrical West, Jan., 1934.

▼



Bathroom Heater

Thermador Electrical Mfg. Co., Los Angeles, has developed a new bathroom electric heater which is 9 in. wide and 48 in. tall. Due to its narrow width it is easy to install in the limited space available in the average bathroom. In addition its height permits heating the bather from head to heels. The heater consists of a nickel-chromium heating unit held by special ceramics in a chromium-plated steel reflector. It is equipped with a steel, black enameled wall box. It is available in 1,650 watts in either 150 or 230 volts and 2,000 watts at 230 volts.—Electrical West, Jan., 1934.



A DETOUR SIGN TO ALL COMPETITIVE COOKING FUELS

THAT'S what a Chromalox campaign is—a detour sign to salesmen of all other cooking fuels. It tells them you are re-building customer satisfaction in electric cookery . . . modernizing old ranges with Chromalox *Super-Speed* Replacement Range Units . . . holding on to every single cooking customer.

Why let other fast fuels steal away your cooking load? Certainly those electric ranges that have been on your lines for five years and more *ARE slow*. Certainly those customers are dissatisfied after hearing salesmen talk about *cooking speeds* and *obsolescence*. What if those old customers can't afford a new electric range? You still can keep them satisfied by modernizing the old range and bringing it up to 1933 speed and efficiency.

Try this and see: Pick out a few customers with out-dated ranges. Send a salesman with a screw driver and Chromalox *Super-Speed* units to replace the old units with new ones. A single Chromalox unit will do more selling than any salesman. It not only will sell itself, but it will sell all the other units too. And it will re-sell the customers on electric cookery and electric speed.

Here is what a Chromalox Modernizing campaign has done for dozens of other companies:

1. Saved the cooking load
2. Protected capital investment
3. Made old range owners satisfied range users
4. Built load by increasing use
5. Made new range sales easier

If you are planning a range campaign this year, you need just such help as Chromalox can give. Old, slow ranges are prospect killers. Don't let a dissatisfied customer ruin a sale. Get your copy of "How to Sell More Ranges." It's a tried and tested plan already adopted by dozens of power companies. Just send the coupon. No obligation, of course.

GET FREE COPY of this TRIED and TESTED PLAN

MAIL THIS COUPON WITH YOUR LETTERHEAD

To Nearest Direct Factory Representative
MONTGOMERY BROTHERS
San Francisco, 61 Fremont St.
Los Angeles, 912 E. Third St.
Seattle, 911 Western Ave.
Portland, 524 S.W. Pine St.
The PETERSON COMPANY
1921 Blake St., Denver, Colo.
or to EDWIN L. WIEGAND CO.
Manufacturers of Chromalox Heating Units
7540 Thomas Boulevard, Pittsburgh, Pa.

Without obligation, please send us complete data about Chromalox Super-Speed Range Units including ( ) Elec. Testing Laboratories Boiling Speed and Efficiency Report, ( ) Sales Helps, Window Display, ( ) Prices, Quantity Discounts.

Also ship us for 10 days' FREE examination and test the following units. We agree to return these units, postpaid, in 10 days; otherwise charge them to my account less 30% discount. *Be sure to specify model and make of range.*

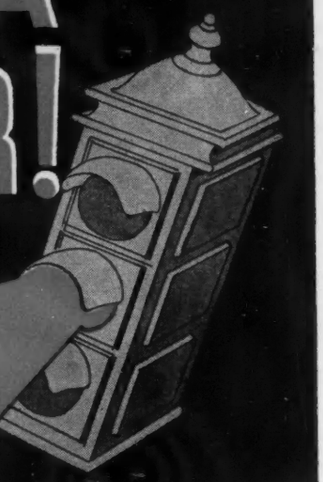
☐ 1000-watt units to fit.....
☐ 1200-watt units to fit.....
☐ 1500-watt units to fit.....
☐ 2000-watt units to fit.....

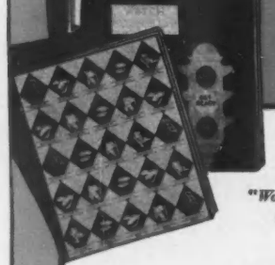
Signed .....

Position..... .....

GET READY FOR A BIG RANGE YEAR!

Hotpoint's Timely Plan is made to order for utilities who want to build new revenue for 1934





"Get Ready" Plan Book

"Watch Your Step" Plan Book

"WATCH YOUR STEP" CAMPAIGN

The steps outlined at the right are "Get Ready" or organization activities. They lead up to the main consumer sales activity which is covered by Hotpoint's great "Watch Your Step" campaign. This is a spring and summer sales drive designed to reach consumers who *must* buy a new range this year. Hotpoint's Plan is aimed to turn this buying toward electric cookery—the greatest *natural* load builder for utilities.

Now is the time to get started on your range load building program. All signs point to unprecedented activities for 1934. Hotpoint's plan, complete after months of discussion with leading merchandisers throughout the country, is ideally adapted to the peculiar conditions to be met in 1934. There are several "Get Ready" activities which will start selling ranges and building load for you right now.

"GET READY" ACTIVITIES

Get ready now. Start with these steps, each of which is covered in detail in Hotpoint's plan.

1. Clean House. Conduct clearance sales of present stocks of obsolete and repossessed ranges. Make room for modern, up-to-date buyer-pleasing models. Complete plans for clean-up sales are included in the Hotpoint program.

2. Modernize. Replace obsolete and out-of-date ranges now on the lines with modern models. Or bring the old, open-coil ranges up-to-date by installing new Hi-speed long-life Calrod.

3. Sell Your Employees. Make every employee a user and a salesman. Hotpoint's Plan contains suggestions for employee activity, contests and plans for moving present stocks at prices and on terms that make possible the wide use of electric ranges by employees. Every employee should be sold on the idea of electric cookery—and the best way to sell him and get the load on the lines is to make him a user.

4. Train and Stimulate Your Salesmen. Sales training and sales contests are amply covered in the Hotpoint plan. The celebrated Hotpoint-LaSalle Training Course, which has met with such signal success wherever used, is the basis of the sales training for 1934. Complete sales kits which enable retail salesmen to demonstrate the principles of electric cookery in a novel and compelling manner are provided. Sales incentives and contests, including the Back to Chicago Contest, have been carefully selected for their success.

Edison General Electric Appliance Co., Inc., 5612 W. Taylor St., Chicago

ELECTRIC **Hotpoint** RANGE

Your Nearest Hotpoint District Office Will Give You All Details

C. P. Myrick, 38 Chauncy Street, Room 1206, Boston, Mass.

M. H. Beekman, 416 West 13th St., New York City

W. T. Christy, 203 Red Rock Bldg., Atlanta, Ga.

W. H. BonDurant, 5600 W. Taylor St., Chicago Ill.

L. E. Buxton, 5600 W. Taylor St., Chicago, Ill.

H. K. Dewees, General Electric Supply Corp., 1801 N. Lamar St., Dallas, Texas

Clyde Allen, 846 Russ Bldg., San Francisco, Calif.

J. C. Platt, 2032 Second Ave., Seattle, Wash.

A. W. Peterson, General Electric Supply Corp., 1411 Walnut St., Kansas City, Mo.

B. E. Rowley, 1015 Continental Bank Bldg., Salt Lake City, Utah

C. N. Willard, 720 Union League Bldg., Los Angeles, Calif.

NRA . . .

*The Utilities State Their Case Against Unfair Government Competiton**

By GEORGE B. CORTELYOU,
President, Edison Electric Institute

HOW do the electric operating utilities fit into the picture and policy of the Recovery Act? We confront at once the fact that nearly all of these electric companies do business only in a single state and do not enter the channels of interstate commerce at all; and it may well be doubted whether the powers of the Congress as to wages and hours extend to purely intra-state concerns. That is a great question of constitutional law which may some day be settled; but we are not here to settle questions of constitutional law.

The recovery program must be based on cooperation, not litigation; and this industry has thus far raised no questions of constitutional law, but has tried voluntarily and diligently to cooperate in the program for recovery. If the act means what it says and if the declared policy of the Congress can be made effective in the proposed utility code, the interests of our customers, employees, and investors will be best served by our continued cooperation.

This industry has increased substantially its payroll costs and is expected to increase them further. The published statements of operating results covering the period since last August, are beginning to show those increased costs very clearly.

The increases in volume of sales, expected by some last Summer and early in the Fall, have not been realized; the increased payroll costs remain and mount higher. How is that situation to be met, under the policy of the Recovery Act? Are the prices to be charged the public to be increased in the face of the demands of some state commissions for rate reductions despite the increased costs and contrary to the desire of the industry to lower rates wherever possible rather than increase them? Or are the resources for increased payroll costs to be provided now through assurance of the elimination of unfair competition and through the other means declared in Title 1 of the Recovery Act?

First we face the fact that in this public utility industry, the rates charged to the public cannot be increased at will to reflect increased operating costs, as has been done in other industries; and the companies would not wish to increase them generally if they could, save under the most urgent and inescapable of emergencies, compelled by large increases in the costs of operating materials, and labor.

It is inherent, then, in the situation, that if this industry is asked to submit itself to a code under the Recovery Act and thereby to perpetuate increased payroll costs, the first effort must be to see to what extent, under the powers vested by the act and the code, these increased costs may be compensated for and offset by eliminating or reducing the unfair competitive practices with which this industry is now beset, and which jeopardizes its ability to comply with proposed provisions as to wages and hours. A code which did not frankly face and deal with this situation would place this industry in an unjust and impossible plight. With the state commissions barring rate increases and even pressing for rate reductions, and with all agencies of government imposing heavy increases in tax burdens, this industry could not fairly or justly be expected to submit to increased payroll costs at the instance of the Federal government under the authority of the Recovery Act, unless the declared policy of Title 1 of the act is assuredly to be made effective in order to maintain the economic resource of this industry. Fair play requires it; the declared policy of the act presupposes it; the logic of present and recent events makes it essential.

The members of the industry point out that their gross and net earnings, and hence their resources available for continued compliance with a code, are unlike the situation in general industry, closely regulated and limited through rates and charges subjected to state regulatory control, and that, in other respects vitally affecting the purposes of the act, the competitors of members of the industry are subjected to no like regulatory control and to no regulatory control over their competitive and trade practices. The result is that in many matters closely related to the purposes of the act, the members of the industry and services in competition with them are now subjected to no means or manner of regulation and supervision in the public interest along lines specified in the act, unless such a means of cooperative redress of abuses is established pursuant to a code under the Recovery Act, as authorized by its terms. Many of the purposes and policies of the act, as to matters not within regulatory powers and jurisdictions under existing law, could be effectually furthered, through publicity, restraint and discipline, within and by the industry itself, as authorized by the the Recovery Act. Abuses within the industry are not typical and are not supported by the opinion of the industry; the opportunity for corrective measures is welcomed.

We submit, as a matter of fair play, that if the private electric companies of this country are to be subjected by the Federal Government to a code imposing increased payroll and operating costs through minimum wages and maximum hours, everyone else in the electric business should be subject to the same code and the same requirements, whether a municipal or other public plant. There are more than 1,800 municipal electric plants in the United States today. The government could not fairly ask us to burden our costs with the expenses of compliance with a code, and then leave our competitors free from that code and those costs, particularly when government itself is or aids our competitors.

Furthermore, one of the declared purposes of the act is "to eliminate unfair competitive practices" and "to promote the fullest possible utilization of the present productive capacity of industries," as well as "to rehabilitate industry" and "to conserve natural resources." Various of the codes approved for other industries have provided, in effect, that this should be done and that no additional and competing plants or facilities should be built or installed until the productive capacities of existing plants and facilities have been fairly utilized (taking into account reasonable reserves), to the end that duplication and waste and increased burdens in carrying charges and operating costs shall not avoidably be placed upon the public. We submit that any code now established ought fairly to recognize and require that this Industry shall be accorded and assured fair and non-discriminatory treatment in this respect, as compared with othe industries under the act, and that the installation of additional productior and transmission capacity and facilities shall be similarly restricted, as has been done through the codes for other industries, until the existing capacities and facilities have been fully utilized.

In all fairness, we then submit these questions: In imposing a code and increased costs upon any industry, may the government itself reserve the right to violate its own standards of fair competition? May the government itself fairly continue to do, as a competitor, what it would permit no private consern in an industry to do? May even the moneys which the government takes from this industry and other taxpayers, be used by the government in violating, or financing others to violate, the standards of fair competition declared in the Recovery Act? May the government with one hand impose a code and increased costs on an industry,

* Excerpts from addresses delivered at Edison Electric Institute Meeting, St. Louis, December 5, 1933.

and with the other destroy the possibility of compliance, through entering the field itself as a competitor conforming to no standards of fair rivalry and backed with all the resources of the taxing power?

These are fair questions which deserve fair answers. They merit the careful consideration of all thinking people. If such a thing can be done today to any industry, it can be done tomorrow or next year to any other. The answers to these questions may be found in the code to be filed soon in Washington. The issue should be squarely faced.

The Federal government should either conform its own activities and use of Federal funds to be declared policy that is fundamental in the Recovery Act, or it should refrain from imposing any code whatever upon an industry as to which the government proposes itself, as a competitor with the industry, to disregard the standards of fair competition. The government cannot fairly impose on private companies a set of severe and costly requirements with which the government does not itself propose to comply, in proceeding to inflict upon the industry a ruinous competition conducted or aided by the government itself.

We submit that it is no more than fair and in accord with the declared purposes of the act, that if a Code of Fair Competition is now imposed on the electric Industry, no department or agency shall thereafter install additional electric generating capacity or transmission or distribution facilities in any Federal project or shall advance Federal funds to others for the construction or installation of any such additional capacity or facilities which would or might be operated in competition with existing capacity or facilities of members of this industry, unless and until it shall have been determined and certified after hearing, by the state board or officers having jurisdiction (or by the administrator, if no state board or officers have jurisdiction), that public necessity and convenience exists therefor, by reason of the inadequacy and insufficiency of the existing service, capacity or facilities.

We invoke in these respects the common sense of the situation, and the American tradition and ideal of fair play. The powers of the National Recovery Act should be used to build up and not tear down. Equality of competitive treatment and the elimination of unfair trade practices is the basic concept of the Recovery Act. Every plant and concern in the electric business should be subjected to the code requirements as to wages, hours, and the like, or none should be. The Federal government should not repudiate or shun its own Blue Eagle. The government itself should not be unfair as a competitor, and should not itself do what it would not permit private capital to do. Particularly is this so, if the government is at the same time to ask these companies to submit to drastic requirements as to wages and hours.

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Something for Nothing?

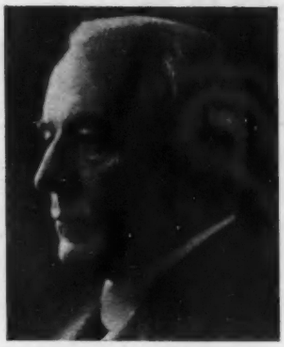
By W. C. MULLENDORE
Executive Vice-President,
Southern California Edison Co. Ltd.

IN the passage of the National Recovery Act, Congress has recognized, and the common-sense of mankind has long recognized, that unfair competitive practices in any and all industries are opposed to the public interest and militate against the general welfare, because unfair competitive practices give advantages to certain sections and groups of our population which are not enjoyed by others, and thus are created obstacles to the fullest possible development of our economic life. If it is true that unfair competitive practices in the smaller industries and groups which serve only fractions of our population, militate against the public interest, how much more is it true that such practices should so far as possible be eliminated from an industry which embraces the entire population and affects the manifold daily activities of our people as does the electric utility industry.

In the administration of the National Recovery Act and in the codes which have been adopted and approved, certain practices have been prohibited as unfair. Among these are selling below cost, the giving of secret rebates, commercial bribery, the giving of prizes, premiums or gifts, defamation of competitors, interference with contractual relations, and misrepresentation or false or misleading advertising. It will be noted that common to all these prohibited and indicated practices is the deceit of and discrimination against, the customers themselves either through pretending to give something for nothing or through misrepresentation of the cost of the article or service sold.

Why should the public be interested in the elimination of these practices? How is the public injured by a continuation of such activities? Why, obviously because there can be no advantage given to one without a corresponding disadvantage to another. If a secret rebate is given to one customer, it is unfair to the customer similarly situated not to receive the same rebate, and an unfair advantage of the one over the other is thus created. Selling below cost to one customer necessitates making up the loss from another to his consequent disadvantage, and it gives to the customer receiving goods below cost an advantage over other citizens who must pay the full value received. All of these practices result in inequalities and maladjustments which tend to obstruct the free flow of exchange of goods and services upon which economic society is dependent for its healthy continuance.

Now, turning to the electric utility industry, I challenge your attention to those governmentally financed units



GEORGE B. CORTELYOU

within the industry which under present conditions operate free from taxes, which are financed by the use of tax-free bonds issued against the public credit instead of being confined, as the privately financed utility is, to the credit of the utility enterprise itself; which charge a portion of their rent and of the services of those whom they employ against other services than that of the utility itself.

The privately-financed utility pays on the average 17 cents out of every gross dollar collected for taxes; most government utilities pay no taxes or entirely disproportionate amounts. The privately-owned utilities are regulated by public agencies and under such regulations they are compelled not only to operate under restrictions from which their government competitors are free, but they are compelled to bear great burdens of expense incident to such public regulation from which their competitors are freed.

As I have said, these governmentally financed units are allowed the use of the public credit, which means that they pledge the property of the entire Nation, or an entire community, including the property of those whom they do not serve. In addition their bonds are usually tax-exempt. By reason of this community credit base and tax-exemption, privileges which are denied the privately-financed units, those citizens who are thus discriminated against are compelled to furnish part of the cost of a service from which they derive no benefit but which is to the advantage of others who have no greater right, under all principles of justice, than themselves.

One of the most glaring examples of the use not only of the public credit, but the use of the powers of taxation to compel the support of these governmental enterprises in the utility industry is to be found in the Public Works Section of the National Recovery Act itself, wherein a tax is imposed on the capital stock, the dividends and profits of the privately financed utilities, as well as other corporations, in order to finance the loans and gifts made by the PWA. Millions of dollars thus derived from the private utilities are made available for the financing of competing

W. C. MULLENDORE

units within the industry, some of which are municipalities to which an outright donation or gift of 30 percent of the capital necessary for competition with private utilities is made. In other words, here is a concrete example of a direct exaction through taxation from the capital and income of private utilities for the direct benefit of competitors who are to be set up for operation upon a much more favorable basis than is permitted to those who have furnished the money for their operation.

The vast majority of the public is served by the private utilities. Of the total of 89,000,000 people in the United States who are served by the electric industry, not more than 8,000,000 or less than ten percent are served by the governmentally - financed enterprises. Hence this small minority of the total population are receiving these special benefits resulting from the perversion of the powers of government in the operation of unregulated, untaxed, and otherwise favored utilities financed by public credit; and this small minority is receiving these benefits at the expense and to the disadvantage of the vast majority.

The vast majority of the public is served by these private utilities, and only a comparatively few communities, towns and cities, located in various sections of the United States, are the beneficiaries of these special benefits resulting from their perversion of the powers of government in the operation of unregulated, untaxed, and otherwise favored utilities financed by public credit. The private utilities are prohibited, under the regulatory laws which govern their operation, from granting preferential rates to one community served by them as against other communities similarly situated and naturally and fairly entitled to the same rates and service.

Why does a sound public policy demand the prohibition of secret rebates, or other preferential advantages to one group of consumers as against another? Obviously because the setting up of such artificial advantages, unjustified by peculiar conditions of service or natural advantages, would tend to advance the growth and development of one business or one community as against its neighbor. The very basis of governmental regulation of the transport services, the communication industries, and of other public utilities, has been the recognition that these discriminations, if permitted and practiced by services upon which the public is dependent, might well result in the destruction of the business or community against which the discrimination was practiced. And we are now faced with the fact that the government itself is not only permitting but is encouraging the very discriminations which it is the established policy of government to prohibit and prevent.

Neither is the vice and peril of these discriminations limited to their effect upon the customers served by the private utilities. Through sacrifice and self-denial in years past millions of our citizens laid aside something from their current earnings for the physical improvements of their communities through private investments, savings investments which they made in the faith that property rights, upon which their human rights are dependent, were guaranteed protection against government confiscation, by the basic laws of their land.

It is the money of the citizens of the United States, their life-savings from their industry, which has furnished the power-houses, the distribution lines and other physical equipment of its public utilities, just as surely as it is the money of those citizens which have built our postoffices, our highways, our schools and other public-service institutions. Hence the public is interested in the fair treatment of the so-called private, but in fact public, utilities of this country both as customers and as owners, and the public welfare and public interest requires and demands fair treatment and the elimination of unfair competition against these utilities for the same reasons that it demands the same treatment for all citizens.

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. . . Construction Code on Desk
. . Manufacturers Start Revisions
. . . Wholesalers in Hearing
. . . Retail Authority Set Up
. . . Utilities Gain a Point

¶**With a promise** that all codes will have been cleared by March and a strong push to get most of them signed before Jan. 1, NRA activity as regards the electrical industry revived considerably within the past month. The President, meanwhile, extended by executive order his re-employment agreement with employers until March, to guarantee the maintenance of wages and hours as agreed to under the blanket code.

¶**Construction** code was on the President's desk for signature Dec. 22, but was held there because labor continued to protest the fact that it was a master code and also that it did not include wages for skilled workers. As submitted, the N.E.C.A. was not a party to the construction industry code, but had the privilege of joining it and becoming part of it if desired, or of filing a separate code. No code was ever so fought over. Labor, which has always been more successful with individual or local groups, refused to budge from a position which would carry it into national cooperation. The I.B.E.W. particularly embarrassed the N.E.C.A. by demanding to be considered more representative of contractors than the contractors' association. As a result, this code has been unduly delayed, and much of the public work which would have benefited labor most, has already been done without benefit of code. (See Business Week, Dec. 30, for full survey of code situation.)

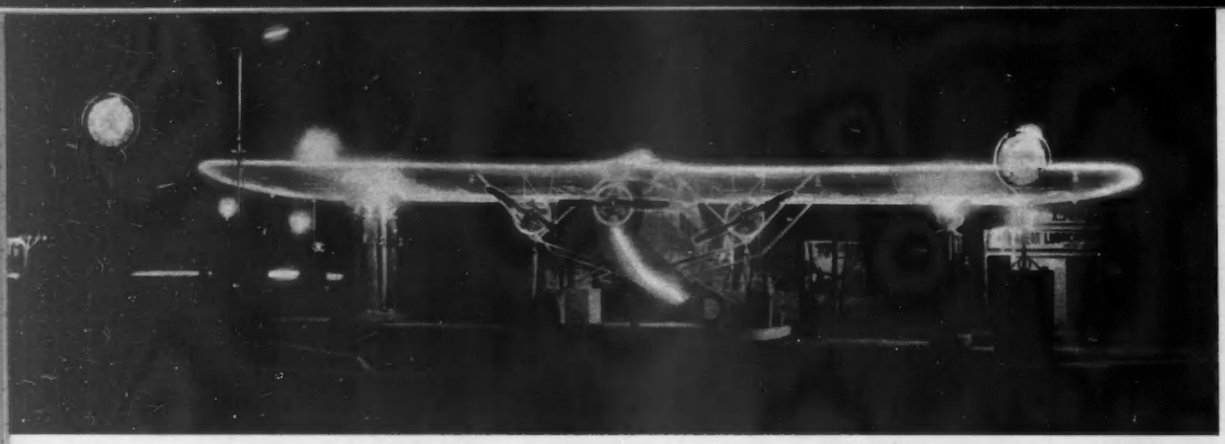
¶**N.E.M.A.** was to begin hearings on revisions and additions to its code, approved last August, and since operating very successfully. Revisions will include fair trade practices, approval of group classifications, tightening up of some abuses in trade prices to favored buyers revealed in the open price provision of the code, and other similar requirements found necessary in operation.

¶**Wholesale codes**, under the master code, are still in hearing. Wholesalers were cheered by the administration's favoring of classification of buyers and discounts, long a problem of moot importance, but consumer counsel feared such rigid classification would prevent economies from reaching the public in lower prices. N.E.W.A. is watching and waiting.

¶**Retail Code Authority**, the police power of the retail code, now in effect, must be paid for. Therefore NRA has proposed a 25 cent per year per retail store employee assessment to support this important part of the work. The Blue Eagle insignia for all duly registered will bear the name of the division of the retail trade in which the recipient is engaged.

¶**Utilities**, as will be seen in the foregoing arguments made to NRA and the President, made a strong case against unfair competition by the government or municipalities, in filing their permanent code. The temper of the administration toward private utilities still bears the anger and resentment of the nation over some of the great collapses of the Insull type, and would not permit regulation of government owned utilities on the same basis as applied to private. But the code as now written does exempt private companies from adherence to the code if a competing municipality does not subscribe to it also.

¶**January** should see the construction code, the wholesalers' code, and possibly the modified manufacturers' code approved, but as usual, there is no telling what may happen in this day and age.



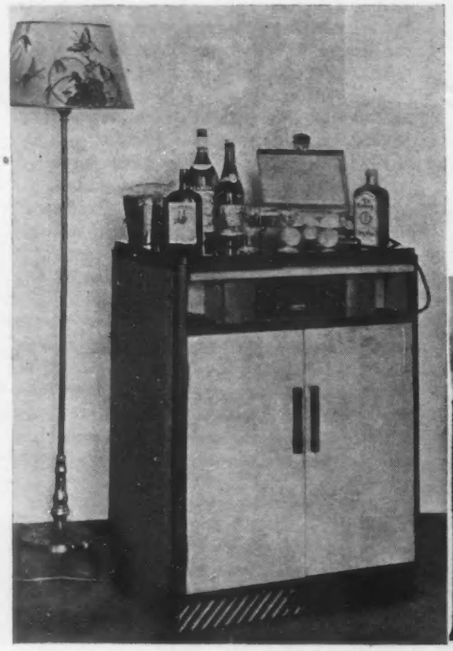
Albatross . . .

The Royal Albatross, once queen of the air, is now an attention getting service station, on El Camino Real, north of Hollywood. Covered with metal, outlined in neon tubing, and with 12 vapor-proof units under the wings to light the serving area, the lighting layout was designed by Illuminating Engineer Shepherd, of Bureau of Power & Light

The Month in Pictures

Kookette . . .

Mobility is one of its chief virtues but by no means its only one, for the Kookette, designed by Henry Bosch, chief of Drafting and Reproduction, P.G. and E. Co., San Francisco, and illustrated here in both the portable and the buffet types, is a most versatile dispenser of electric service. The chief features, indeed, are its retrievable appliance cords, which can be drawn, held, or withdrawn at will. The complete unit is protected against circuit overload by nofuz circuit breaker. The upper photo shows the portable type, with side shelves of monel metal opened to hold dishes or appliances, the ample storage space below for dishes, clean or soiled, or appliances when not in use; and the pilot and switch panel which contains two extra twist-switch outlets. Below is the buffet model, with panels closed, showing what a handsome piece of furniture this new convenience to the home can be made



. . . Reno Cooperators

Record making cooperators, are these Reno dealers and utility folks, for they just finished a history making cooking school and Hotpoint range campaign in the divorce capital of America. The campaign was conducted by the Nevada Contractors and Dealers Assn., whose members are shown here gracing the courthouse steps. From left to right, back row are: Ralph Shearer, president and J. Stover, vice president, Shearer Electric Co.; Clyde E. Allen, and H. A. Cram, General Electric Supply Corp., San Francisco; A. J. Shaver, sales manager, Sierra Pacific Power Co.; and Harry McNaught, Linnecke Electric Co. First row: H. A. Lemmon, commercial manager, Sierra Pacific Power Co.; F. A. Broilli, Nevada Machinery & Electric Co.; George A. Campbell, president, Sierra Pacific Power Co.; Fern T. Hubbard, home economist, Edison G.E. Appliance Co.; Mary Stanland, home economist, Sierra Pacific Power Co.; Ted Martinez, Martinez Electric Co.; and Harry Linnecke, Linnecke Electric Co.

Modernized . . .

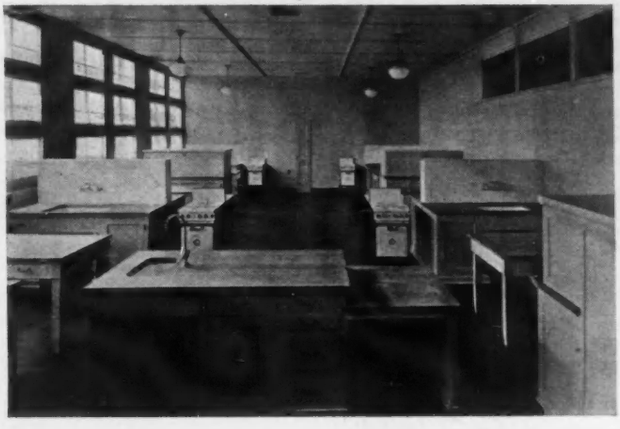
Fifty percent increased output resulted from the reconstruction of the turbines and installation of new generators at the Farad plant of Sierra Pacific Power Co., built in 1899, rebuilt in 1933, with profit

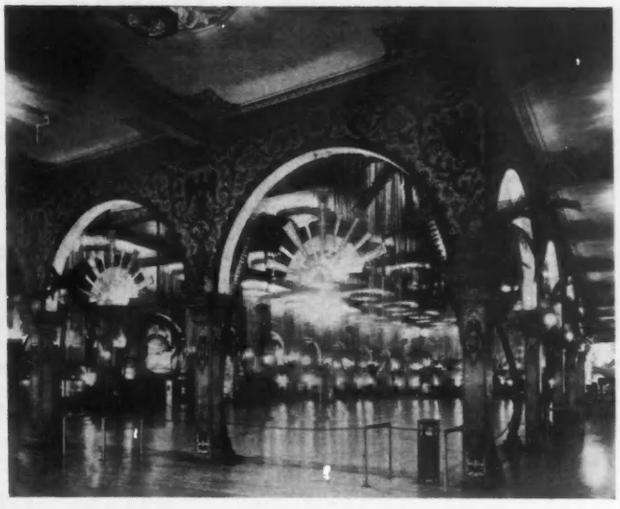
. . . Bay Bridge

First conduit on the San Francisco-Oakland Bay Bridge, a 6-in. transite primary conduit, installed by Electragist Victor Lemoge, San Francisco

For Future Cooks . . .

Vallejo, Calif., has a new junior high school, electrically designed by R. L. St. John, lighted throughout to 10 ft. candles, whose kitchens are equipped with 12 Hotpoint ranges, a 45 cu. ft. refrigerator and many small appliances to train future cooks the electric way





. . . Rainbow

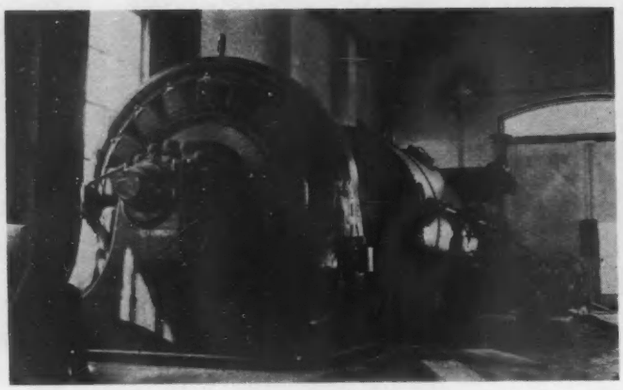
Eighteen keys of a light "organ" keyboard control the entire lighting, in color of course, at Rainbow Gardens, Los Angeles ballroom, recently relighted according to the "colortrope" designs of Leo Geasland

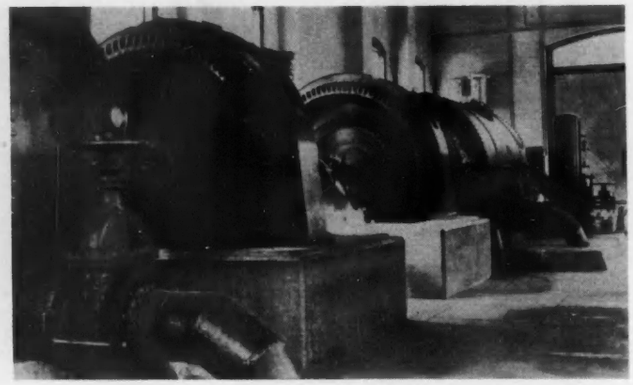
To Market . . .

R.F.C. funds provided Portland with a mammoth new public market. The room shown right, is 600 ft. long, by 130 ft. in width, with a mezzanine floor. Besides general lighting, stalls have additional high intensity lighting

- - Engineering and Construction

Engineering and Construction





Interior views of the Farad plant before (left) and after (right) reconstruction which increased output 50 per cent

Hydro Plant Rehabilitation Increases Production 50 Per Cent

By VERNON D. ARMSTRONG
Engineer, Sierra Pacific Power Co.
And HUGO E. BECKER
Westinghouse Electric & Manufacturing Co.

FACED with a problem of providing power for a load which had increased beyond the maximum capacity of its hydro-electric plants, the Sierra Pacific Power Co. at Reno, Nevada, made a survey of these plants to determine if it were possible to increase their output by modernizing them.

Water shortage has been a major problem for some time. In addition to this the present low water level in Lake Tahoe, which is the major source of water for the Truckee River, on which practically all the company's plants are located, indicated a year of water sortage. This materially added to the problem of the company which was already faced with large power purchases.

A survey of the generating plants indicated that the biggest increase of generated power could be obtained by installing modern equipment in the Farad plant. This plant is located on the Truckee River about twenty miles upstream from Reno. It was built in 1899 to serve the mining load at Virginia City, and was later tied in with four newer plants on the same stream to serve Reno, Carson City, and other neighboring communities and nearby mines.

Water for this plant is diverted from the river into an 8,700-ft. wooden flume, and from thence through two wooden stave penstocks into the plant. The two original turbines and generators remained in service until early in 1933. The horizontal 400-r.p.m. McCormick turbines built by the S. Morgan Smith Company had 27-in. bronze runners and cylinder gates. These were coupled to two Westinghouse revolving-armature 750-kw., 500-volt horizontal generators. The generators aside from insulation failures due to lightning surges which could not be adequately protected against by older types of lightning arrestors, and to bearing troubles caused by lack of knowledge of effects of bearing currents at the time the generators were built have been in continuous service during the major portion of each year since their installation.

By installing modern lightning arrestors, and by insulating the generator bearings against bearing currents, shut-downs in the power plant had been practically eliminated, and the equipment was in excellent operating condition 33 years after installation.

With a head of 82 feet the plant produced 1,500 kw. when using slightly less than 400 c.f.s. of water. The overall efficiency obtained was approximately 55 per cent.

The following conditions were the factors which made it desirable to proceed with the rehabilitation of the plant during 1933.

1.—Construction work generally was at a low ebb, consequently a great deal of work could be done with the regular force.

2.—Material and labor costs were low.

3.—The flume was in bad condition, thus necessitating heavy replacements of lumber in any event.

4.—The above mentioned low water conditions and power purchases.

Three plans presented themselves for this reconstruction.

The first meant the replacing of both old units with one 2,800-kw. unit, either horizontal or vertical. This involved tearing out and rebuilding the foundations, tail pits, and penstocks. Besides being the most expensive plan it was the least advantageous from an operating viewpoint because of long periods of low water with consequent operation at light load and low efficiency.

The second meant the installation of two entirely new units of 1,400-kw. each. This also required expensive structural changes.

The third plan called for retention of the old turbine pressure cases which were found to be in good condition, the installation of new wicket gate wheels, shafts, draft chests, new improved draft tubes, and new 2,300-volt generators.

Since the efficiency guaranteed by the S. Morgan Smith Co. for the rebuilt turbines was very nearly as high as for entirely new units, this third plan was adopted and a general outline of the work done is as follows.

The only old turbine parts retained were the plate steel pressure cases with cast iron heads, cast iron cradles, and supporting structures. New double 30-in. bronze runners, cast steel wicket gates, cast iron crown and curb mechanism, and cast iron draft chests were installed.

The lower 12 feet of the penstocks were replaced with tapers enlarging to an oval section which allowed the water to enter more nearly over the gates, thus reducing the disturbances in the casing. A plate steel fin was installed vertically in each taper to provide rigidity.

New steel plate draft tubes of slightly larger diameter were installed. The tail pits which are of uniform rectangular section were excavated to give a uniform slope in front of the pits to provide free discharge into the river. As the new draft tubes were installed at a steeper pitch than the old, rock was removed from in back of the tubes and the rear walls curved to the floor.

The units are equipped with oil pressure governors with electrically operated control valves for gate operation, a common pumping unit, and pressure

of the Month

tank. Since this is not a governing plant, governors standards and fly balls were omitted but may be added later for complete governor control.

Generators and Exciters

Two new 1,750-kva., 2,300-volt, 400-r.p.m. Westinghouse generators were coupled through rigid couplings to the prime movers. A new 40-kw. motor generator set with a Type SK, 125-volt shunt wound d.c. generator and linestart motor normally supplies excitation for both units through a common bus. In addition one of the old 22-kw. shunt wound belt-driven exciters was retained for emergency operation. It is belted to an old type C motor which was rewound for 2,300-volt linestart operation.

Reconditioning of the flume included the erection of new and heavier sills, posts and caps which permitted raising the sides 2 ft. in the upper half and 1 ft. in the lower half. Capacity was thus increased to 500 c.f.s. Reconstruction of the old forebay included removal of the downstream half and installation of new gates with steel guides. Connection to the penstocks were made with 7-ft. welded steel elbows, belled to 8-ft. rectangles at the intake and tapered into the 6-ft. penstocks. Twenty-inch steel standpipes were welded to the steel sections just outside the gates to act as air valves. These changes improved flow conditions and provided maximum head on the turbines.

The original Vermont marble switchboard panels were reconditioned by filling all holes with marble dust and Glyptal and painting with blackboard slating. All of the original Type SM instruments were used and various relays required for semi-automatic operation added. Conventional semi-automatic control was provided including shutdown provisions for overspeed, undervoltage, field failure, generator overtemperature, hot bearings and oil pressure failure.

The 1,200-amp., 4,500-volt generator circuit breakers installed in 1912 were retained and special disconnects added. The original transformers installed inside the plant had been burned in 1912 and been replaced with a bank with 550 and 2,200-volt primaries in anticipation of the present changeover. This bank was moved outside and paralleled with a new bank of the same size to raise the capacity to 4,000 kva. Connections to the transformers and from them to the 23-kv. switch structure were made with underground cable to provide a neat installation and to eliminate the construction of bus structure above the transformer banks.

Results obtained justified the plan adopted. Factory tests of the generators showed efficiencies in excess of those guaranteed by the manufacturer. Field tests of the reconstructed turbines showed efficiencies 2 per cent higher than the manufacturer's guarantee.

Overall tests showed that the rebuilt plant delivered 2,250 kw. with 400 c.f.s. of water as compared with 1,500 kw. from the old plant, or an increase of 50 per cent. The full flow of 500 c.f.s. has not been available since the completion of the project. However, with 250 c.f.s. and .8 gate opening, each individual unit has developed 1,400 kw.

The savings due to decreased purchased power resulting from this increase in efficiency, have more than justified the expenditure made for the rehabilitation of the plant.

▼

Economies From Automatic Operation

By A. FRANK AYRES
The Southern Sierras Power Co.

SITUATED at El. 7800 at the foot of Tioga Pass in the Sierra Nevadas, the Poole Plant, largest single-unit hydro station on The Southern Sierras Power Co. system, presented operating difficulties due to the fact that for three months of each year it was entirely cut off from all transportation facilities except by means of skiis or snowshoes. This fact precluded employment of the services of any relief operator during these months without considering the construction of additional housing facilities.

Studies showed that this particular plant presented an ideal situation for the installation of certain semi-automatic features which would not only obviate the necessity for additional housing facilities, but which would also permit savings in operating expenses. The final plan evolved represented an investment of approximately $5,000 or 50 cents per kw. and has resulted in annual savings of approximately $2,500.

Because one operator must be stationed at the plant for maintenance purposes, full-automatic operation was not justified. Water storage conditions permit operation of the plant on a block load basis. Thus voltage and load changes are infrequent. Operating personnel consists of two operators, neither of whom is required to remain on duty in the plant but one of whom must be on the premises at all times subject to call. In addition to regular routine work, the operator is responsible for putting the station on and off the line as required, making load and voltage changes and responding to calls from the station alarm system after the functioning of any of the semi-automatic equipment.

The fact that this plant was already equipped with storage battery, electrically operated oil circuit breakers and field breaker, as well as full electrical control on the hydraulic governor and needle nozzle made the application of semi-automatic and protective features relatively simple.

Considerable study was given to the matter of the proper protective equipment to install in the plant as well as the sequence in which the various devices should function. All emergency conditions which might be encountered were considered and measures taken to provide proper protection against practically all. The protective devices were selected and arranged in such a manner that for the most serious emergency conditions, one device would provide "back up" protection in case the proper equipment should fail to function.

The protective devices may be divided into six distinct classifications with regard to the manner in which they cause the various plant equipment to respond. The first form of operating sequence includes the most serious forms of emergencies that might arise. The emergency conditions included under this first heading are: generator overheated bearings, generator overheated windings, low water at intake after a specified time delay period, loss of generator field, generator differential protection against internal electrical faults, and reversal of power flow into the generator.

The sequence of operations which takes place for any of the above faults is as follows: first, the generator oil circuit breaker is tripped, next the field breaker is opened and lastly the water stream is deflected. The time interval between these various operations is very short, being determined by a pallet switch on one device causing the operation of the succeeding piece of equip-

General view of Poole plant, where installation of semi-automatic equipment resulted in savings in operating costs

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ment. At the same time the oil circuit breaker trips, the needle nozzle motor is energized, starting the closing operation which requires two or three minutes to complete. An alarm is also sounded at the start of the sequence and the proper annunciator indication given.

The second classification includes protection against only system under-voltage and over-voltage. Either of these conditions causes the following sequence of operation: first, the generator breaker is tripped, next the field breaker is opened and lastly the water stream is deflected. An alarm and annunciator indication are given at the start of the sequence. The needle nozzle is not closed by these devices, which permits the operator to restore the plant to normal more quickly than if it were first necessary to open the needle nozzle.

The third group of protective devices includes governor head belt breakage (by means of a belt idler switch) and low governor oil pressure. In either of these cases the protective device deflects the water stream, sounds an alarm, gives an annunciator indication and starts the closing operation of the needle nozzle all simultaneously. This leaves the generator motoring on the line which enables the operator quickly to restore conditions to normal.

The fourth classification includes only over-frequency. In this case the protective device deflects the water stream, sounds an alarm and gives an annunciator indication all simultaneously. No further action takes place.

The fifth group of protective devices does not alter any operating condition but merely sounds an alarm and gives an annunciator indication. This list includes: transformer temperature alarm, battery charging motor-generator set reverse trip carbon breaker alarm, generator overcurrent alarm, transformer high tension neutral current alarm, instantaneous intake low water alarm, auxiliary 24-volt battery fuse alarm, main station battery direct current operating and control bus fuse alarms.

The sixth group of protective devices includes overcurrent relays on two low tension feeder circuits. These merely trip the oil circuit breaker of the circuit at fault and give annunciator and alarm indications without in any way disturbing the operation of the generator or other plant equipment.

Standard protective devices were used throughout. All auxiliary relays were mounted without covers in one large cabinet on a hinged panel so arranged that both front and rear were easily accessible.

A special feature was utilized in connection with protection against low water at the intake. A sensitive pressure-governor type switch was installed near the upper end of the pipe line in a location well protected against freezing. By means of standard simplex telephone coils a ground return circuit was established from an auxiliary 24-volt storage battery in the power house over the existing telephone circuit to the intake and connected with this pressure-governor switch.

In case the intake level should drop to a point where continued operation for any great length of time might be hazardous, this pressure-governor closes its contacts completing the circuit to an auxiliary relay at the power house. This auxiliary relay sounds an alarm, gives an annunciator indication and starts a motor-operated direct current timing relay. This, of course, summons the operator who can confer with the intake attendant by telephone to determine the exact status of the intake level and readjust the load on the plant to conform with the amount of water available. In case the operator should be unable to respond to this call the timing relay will continue to function and at the end of approximately twenty minutes it will cause the plant to shut down as described under the first classification.

Although a few adjustments have been necessary and some changes made in certain of the original relay settings, in general the operation of the semi-automatic equipment has been highly satisfactory and the investment is considered well worth while.

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New Meter Assemblies Thwart Theft and Afford Standardization

CURRENT theft or energy diversion, while not a new problem with the power companies, is one of increasing importance. The percentage in kilowatt-hours and customers involved has grown to such an extent as to cause real concern among executives and meter departments. In the case of one Pacific Coast company the actual number of cases detected has increased from 37 in 1923 to 673 in 1932. Reduced incomes and increased unemployment, coupled with political attack against the utilities which has salved the conscience of customers have contributed to the problem until today revenue losses are so great from this cause as to warrant aggressive action to curb what threatens to become an epidemic.

More or less complete solutions have been devised by individual companies working with meter, box and seal manufacturers, but a common answer which would suit all parties is yet to be adopted. Yet if progress has been slow, there is hope for the fututre. Two diversified, commercially practicable solutions that strike squarely at the problem of theft and at the same time afford many if not all of the advantages incorporated in various individual solutions are today available. One big step forward has been the approach toward a universalized design that will permit control of costs through volume production as against the luxury costs that have frequently characterized the custom jobs of the recent past.

Although marked progress has been made in meter development, particularly as regards benefits to the user, there has been a lack of standardization which has materially retarded progress toward reaching a common practice and understanding in the matter of combatting energy diversion. As has been said, local solutions have been the rule and the economic advantage that would come from sacrificing individuality and pride of local accomplishment has been overlooked. By incorporating the best features of all local answers, the way would be paved for volume production, simplified stocks, interchangeability and standardized installation.

Briefly the meter attributes desired can be enumerated thus: prevent energy diversion, afford safety to men and to service, take full advantage of the new sequence, be adaptable to indoor or outdoor metering and to the prevailing techniques of handling discontinued services. These are the things which are primarily recognized as bringing the need for mounting standardization into sharp focus.

Disclaiming any intention here to confirm or disparage any particular design, the object of this presentation is, on the contrary, to enumerate the various requirements of service and to show how two distinct commercial solutions aim to meet all these requirements. The decision in the end rests with the purchasers. They will have to place the candidates on the examination stand and let the answers to some such questions as the following influence the decision for or against the diploma:

How far does the assembly go in preventing diversion of energy?

Which of the artifices encountered will it absolutely obviate?

Are various degrees of proofing against diversion afforded in the program and are the constituent units interchangeable in this respect?

Does any of the assemblies give positive protection against entering the meter by way of the cover?

Does it afford ample safety to service and to metermen who test and detach loaded meters from live circuits ahead of switch and fuses?

Does it permit continuity of customer's service during testing, if desired?

What does it afford as to facility in leaving meters in place on inactive services or in removing them for vacancy or change?

How far does it lend itself directly to outdoor installation?

Does each constituent unit afford interchangeability among different makes?

Does the design make the meter any less accessible to the meterman for inspection or test purposes? or

Does it simplify and standardize the facilities for testing?

To what degree can existing meters be adapted to the scheme?

One of the designs devised to meet these requirements (the detachable meter and socket) has been available from one manufacturer since April. It is now to be obtainable from three meter manufacturers. The other design is shortly to be announced officially, sponsored by three of the meter manufacturers.

The socket-detachable meter was devised to afford a broad answer to the above conditions, to facilitate the inevitable steady replacement of obsolete meters and to make possible the adaptation of all makes of semi-modern and modern meters to a universal scheme of installation and protection. It involves no restriction of the volume of prevailing covers nor of the prevailing terminal arrangements. It aims to separate the meter proper from the terminal structure and thus give free play to further independent improvements in internal meter mechanism and to the terminal features insofar as they perform protective functions. This type of meter and socket is therefore calculated to accommodate past, present and future meters (as far as they can be foreseen) up to and including 50 amp. An additional feature is that it offers an opportunity for utilities to readapt their present relatively large stocks of inactive meters to a unified program of new and renewed installations.

Interchangeability of components is a positive feature. Parts are available to adapt all makes and types of meters since 1914 to the new detachable design. Semi-obsolete meters of all types can be adapted to the new socket for additional years of service where this appears to be an economical procedure. An entirely dead-front sequence is afforded as to both meter and (portable or permanent) test jack in the testing procedure.

Among the structural details may be mentioned the fact that the jaws in the socket base may be swung to accommodate either a horizontal or vertical conduit connection. The meter bayonets cannot be inserted improperly and thus cause a short-circuit across the live service jaws. No sealing compound is required between the glass cover and the cover ring, a hard fibre gasket serving to keep moisture out. The sealing ring secures the cover, the meter base and the socket base at a single joint. Provision is made for short circuiting and grounding customers load wires in case of disconnect. If it is not desired to leave meters on idle services a blanking plate can be provided and held in place by the regular sealing ring.

Three of the meter manufacturers have joined in developing and sponsoring a second design which embraces a comprehensive line for all desirable form of installation. Three sub-types have been provided: (A) for standard house-type installation corresponding to present types of meters; (B) with safety disconnects (which also provide test facilities) incorporated into the terminal chamber; and (C) a full-armored design to afford maximum protection under severe service conditions in conjunction with conduit wiring. The A and B types can also be conduit-connected by the use of a die-cast aluminum pull-box and terminal cover.

Complete interchangeability of parts is assured. It is possible to substitute a meter of a given type made by one manufacturer for one of the same type made by another manufacturer; also meters can be changed from one type to another. The A-type can be converted into the B or C type and vice versa by changing the terminal blocks. External, mounting and terminal-spacing dimensions are to be the same for all meters of the same sub-type made by all three manufacturers. External meter condulets, pull boxes, connection blocks, terminals, glass covers and terminal covers are interchangeable among the three manufacturers. Meanwhile nothing has happened to disturb the internal electrical characteristics for which the meter of each manufacturer is noted.

While engaging in this joint development advantage has been taken by all three participants to incorporate incidental improvements that will thwart corrosion, infiltration of dirt and moisture and the malicious insertion of detents. Sealing the terminal cover seals the glass cover or it can be sealed separately. Test connections can be made to the terminal screws by means of universal test clips. The hanging lug may be "blind" or extended, by reversing it, to facilitate mounting in existing types of boxes.

In this set-up the B-type meters are designed primarily for installation where safety disconnect features are desirable. They are identical with the A-type except that two terminal blocks having the safety disconnect features are substituted for the one block of the A meter; the B meter is only 1-3/16 in. longer than the A. The safety disconnect features in the B and C types consist of two rows of four terminal screws; the upper row are differential (right and left-hand) screws with self-locking threads. There is of course no need of interrupting the loaded circuit at these points for testing purposes because load jumpers can be clipped to the heads of the bottom row of lead-in screws. The same conduit pull-box can be used for both A and B meters but of course different terminal covers are required in the two cases. Single-point sealing is effected by means of a sealing bar threaded through the heads of the sealing screws. The terminal covers securely lock the sealing clip and thus seal the glass cover.

Type C is designed to meet the most exacting requirements demanding a full armored job. The meter is detachable and is equally accessible as the A or B for testing in place. Except for the protruding portion of the glass cover the meter is fully protected by a die-cast aluminum case held in place by two rugged sealing screws. If desired a breakable glass seal can be snapped into the recess surrounding the lower seal screw. The C meter is identical with the B meter except for the connection block which in the C sub-type extends in back of the meter and is designed so that the leads come into the terminals from the top and behind the meter. B-type meters can be converted to C-type meters by changing the connection block and providing a die-cast case. Either the B or C assemblies constitute a complete unit comprising all necessary protective and test facilities.

The foregoing describes two somewhat rival offerings for meeting the needs of the utilities as appraised by the manufacturers. It rests now for the purchasers to correlate these solutions with their own individual problems. The fact remains that over half of the meters in use today are obsolete—are over seven years old and antedate many of the desirable characteristics developed in recent years. The next ten years are bound to entail an extensive modernization in metering technique. Today's problem of current theft should hasten the movement.

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Ingenious Drive for Building Telescope

Adaptation of constant-voltage, variable-speed motors to a grinding and polishing machine for the new 120-in. telescope mirror now being assembled in the machine shops of the California Institute of Technology, at Pasadena, has resulted from the efforts of J. M. LaMontagne, of the Los Angeles office of the Westinghouse Electric & Mfg. Co. The manufacture of this mirror will be the first step toward completion of the 200-in. mirror which will be used in the world's largest telescope.

The design of the machine to finish the mirror is an arrangement very much on the order of an overhead traveling crane, in which the trolley, instead of being provided with a hoist, simply carries a vertical spindle to which is attached a surface grinding or polishing tool at the lower end. Nine motors will be used to drive the various motions of the machine, including bridge, trolley, spindle hoist and spindle rotation, table tilt, and table rotation, and oil pumps. The control will so interlock the bridge and trolley motions that various patterns, such as circles or ellipses, may be obtained with the polishing tool. This will be accomplished by reversing the bridge at the center of the trolley stroke and reversing the trolley at the center of the bridge stroke and by varying the relative speeds of the two driving motors.

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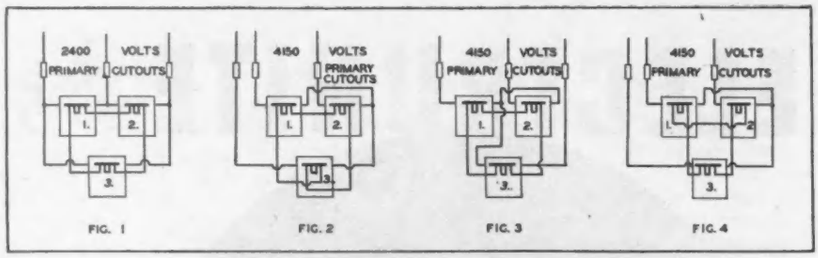
Cutting Over to Common Neutral

By H. L. WHISLER
Distribution Engineer
Portland Electric Power Co.

EXPERIENCE of the Portland Electric Power Co. in its program of cutting over overhead feeders from 2,400-volt delta to 4,150-volt star operation initiated in 1926 and continued intermittently since that time has brought to light several interesting problems and difficulties as well as a simple technique which may be helpful to other utility organizations engaged in or contemplating similar work.



Figs. 1 to 4—Connection of standard three-phase transformer bank on 2,400-volt primary (Fig. 1) and suggested methods of reconnecting after cut-over to 4,150 volts

The initial four feeders cut over were made four wire by stringing in a primary neutral. It was installed on the same arm with the primary and grounded only at the substation. For ease of identification, on lines running east and west, the neutral was installed on the south end of the primary arm, and on lines running north and south it was installed on the west end. Single-phase transformers were connected between the neutral and one hot wire, as were transformers in banks of two with open-delta secondaries. Banks of three with closed-delta secondaries were left independent of the neutral and the Y point was not grounded.

This four-wire system constitutes an improvement over the old 2,400-volt, three-wire system inasmuch as the capacity of a feeder is approximately doubled without appreciably increasing the hazards of working the line "hot." However, it has two disadvantages. The most obvious is the expense of installing the fourth wire. The second is the difficulty of regulating voltage when the load is not exactly equal on all three phases. When one phase carries more load than the others, some of its current flows back to the substation through the neutral, causing a voltage drop in the neutral. This not only lowers the voltage on this phase but also raises it on the other two.

Consequently this system was abandoned in favor of the "common neutral" system. The lighting secondaries form a network which is almost continuous over the whole city and the neutral or ground wire of the secondary is used as the neutral of the primary also. Wherever the secondary is not continuous, the neutral is made so and it is connected to the neutral bus at the station. Single-phase and open-delta transformers are connected between the secondary neutral and the 4,150-volt primary and closed-delta banks are left independent of the neutral as before.

The secondary neutral is grounded to the water pipes in most buildings as is required by the N.E.C. and the practice with this company has been to ground it in the street also at the foot of each transformer pole. Before cutting over a feeder to the common neutral system, all transformer grounds are carefully tested and examined and if necessary repaired.

Many of the disadvantages mentioned in connection with the four-wire system are obviated by using the common neutral system. Some new wire has to be strung to complete the neutral network but an equal or greater amount of wire can be taken down out of the primary. Voltage regulation is more

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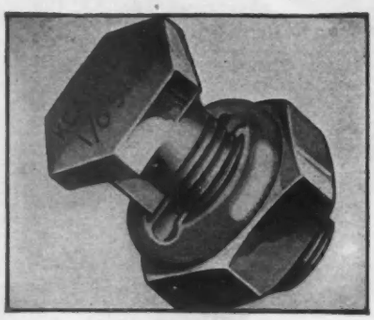

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satisfactory because the resistance of the neutral grid is very low and a slight unbalance does not cause any noticeable floating of the neutral.

Prior to 1926 transformers feeding three-phase power were frequently mounted on the pole as shown in Fig. 1, two on one crossarm and a third on another either above or below. This system of mounting was used especially when the transformers were large, making difficult the hanging all three on the same arm. When a bank similar to this is cut over to 4,150 volts is is desirable to have the engineer in charge check the connections and remind the linemen that the secondary must also be changed over. Failure to take this precaution results frequently in cutting over the primary as shown in Fig. 2 and leaving the secondary as in Fig. 1. This naturally is a short circuit since transformer No. 3 is reversed.

Figs. 2, 3 and 4 show three possible ways of cutting over the bank of Fig. 1 to 4,150 volts. Each system has its advantages but for reasons outlined below the method shown in Fig. 2 has been used most frequently by this company.

From the standpoint of least interruption to service, early Sunday morning proved to be the most satisfactory time for cutting over a feeder. By starting at dawn, or a little before, the work usually was completed before many of the customers desired service. In order to save time on the day of the cut-over, everything that can possibly be done beforehand is accomplished during the preceding week. This includes installation of new primary cutouts, brackets, wire and insulators. The insulation is removed and wires scraped clean where connections are to be made. All this work is done by regular line crews and in cases similar to Fig. 1 the necessity for reversing the polarity of transformer No. 3 is generally overlooked. During the actual cut-over the easiest way to reverse the polarity of this transformer is to cross the secondary taps as shown in Fig. 2.

Fig. 3 shows the neatest and easiest connection of all, but this method has the disadvantage that it seems inconsistent to many of the linemen. They have been carefully and emphatically instructed to run the primary into the north side of every transformer which faces east or west and to run it into the east side of every one which faces north or south and it is difficult for them to see why it is permissible to run it into the wrong side of transformer No. 3 in this case. Fig. 4 shows another method which is used by some of the linemen because they are able to see that this connection is equivalent to hanging all three transformers on the same arm and connecting the secondaries delta in the usual way.

Changing the connections of every bank on a feeder means reversing the phase rotation of about half of them and extreme care must be exercised so that customers' motor run in the correct direction after the cut-over. Since most of this work has been done early in the morning it is impossible frequently to gain access to the customers' premises and it is necessary to test phase rotation of every three-phase bank at some point where such procedure is convenient.

Phase rotation is tested with the contrivance shown in Fig. 5. A voltmeter (V), a resistance (R) and a reactance (X) are connected together as shown. When leads 1 and 2 are connected to two wires of a three-phase secondary, the voltmeter shows the line voltage because the resistance of the coil R is negligible by comparison with the high resistance of the voltmeter. When lead

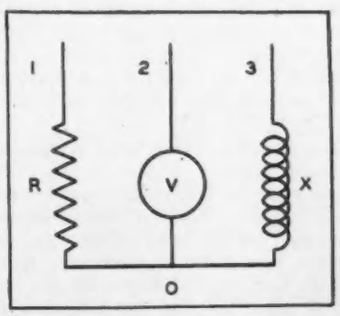

Fig. 5—Diagram of simple equipment for testing phase rotation and voltage after cutting over to 4,150-volt common neutral system

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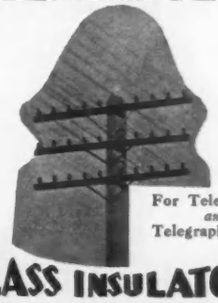

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3 is connected to the third wire, the resistance and reactance are in series across one phase and a small current flows through them (about one amp.). The voltage across the resistance is out of phase with that across the reactance by almost 90 deg. and this produces an electrical displacement of the common point 0. The reading of the voltmeter then goes either higher or lower than the line voltage, depending on the direction of the phase rotation.

Tests of this kind are made on each power secondary before the day of the cut-over and a record kept showing which lead of the instrument was connected to which wire of the secondary and whether the reading of the voltmeter went up or down when lead No. 3 was connected. On the morning of the cut-over the line crews are instructed to leave the cutouts open on all power banks until the rotation can be tested. A special crew for this purpose follows up the other crews and tests not only the phase rotation but also the voltage on all three phases of the power secondary. When rotation or voltage proves to be incorrect the special crew makes the necessary changes on the spot. The testing device shown in Fig. 5 has proven very satisfactory for this work because of the ease with which both voltage and rotation can be tested with the same set of leads and instruments.

▼

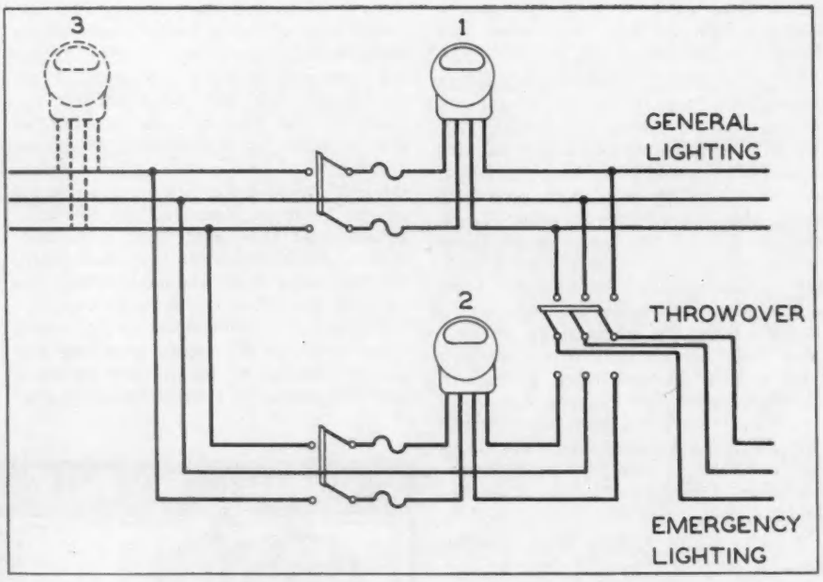
¶**Industrial Applications of Soil-Heating Cable**—Although designed primarily for horticultural and agricultural uses, soil-heating cable, which consists of nickel-chromium wire covered with asbestos, taped with varnished cambric, and encased in a lead sheath for protection from moisture, has a wide variety of industrial applications, according to General Electric engineers. A steel plant which had difficulty in the winter time with its oil lubrication pipe line has solved the problem by winding soil-heating cable around the pipes and applying insulation. An automatic, adjustable thermostat maintains the temperature of the lubricant at the proper point irrespective of weather conditions. A paint laboratory, where soil-heating cable has been installed in a water bath which is used to maintain constant humidity for testing paints in a saturated atmosphere, constitutes another installation.

▼

¶**NePage-McKenny Co.**, San Francisco, has been awarded a $41,000 contract for reconstructing the electric feeder system in the Flood Bldg. in that city, engineered by Hunter & Hudson.

▼

¶**Newberry Electric Corp.**, Los Angeles, has secured the contract for the new building being erected by the Los Angeles Times, opposite the civic center. The job includes a large installation of power equipment for the Times-Mirror printing plant, as well as newspaper presses, stereotype and linotype machinery and offices for the newspaper itself.



Wiring Change Cuts Consumer's Bill

Most city ordinances for public buildings, such as apartment houses, theaters and clubs, require that emergency lighting circuits be supplied ahead of the general service switch. With the conventional switch-fuse-meter sequence used in the general lighting service, it is necessary to provide a separate meter for the emergency lighting circuit. Thus two meters are necessary for a so-called master-metered building as shown in the accompanying diagram.

The addition of the extra meter on the emergency lighting service adds to the customer's bill, not only the cost of reading the extra meter, but also the kilowatt-hours used in emergency lighting service which, because of the relatively low consumption, fall in the high-rate blocks. Thus the consumer does not get the benefit of the low-rate block on his total consumption even though his entire load is taken off of the same feeder supply.

Cooperating with the Pacific Gas and Electric Co.'s Oakland office, the electrical department of the city of Oakland recently modified its electrical ruling on emergency circuits to permit the use of a throw-over switch connected on the load side of the general service meter. Under normal operations, this switch is held closed by, and supplies power from, the general service to the emergency lighting circuit. If a fuse blows or any other interruption occurs in the main building service, the gravity-operated contacts of the throw-over switch drop into the contacts of the emergency service feeder.

As interruptions are infrequent under present conditions, the need for the second meter is eliminated, thus relieving the consumer of the meter-reading charge as well as lowering the over-all cost per kilowatt-hour that he pays for both general lighting and emergency lighting energy.

While this saving can be applied to master-metered buildings only, it is well to note that a city ordinance which permits the new meter-switch-fuse sequence eliminates both the need for the second meter and the throw-over lighting switch inasmuch as building power is metered as shown by meter No. 3 in the accompanying diagram.

▼

¶**Testing equipment** in the Crystal Lake high-voltage testing laboratory of the late F. G. Baum, consulting engineer of the Pacific Gas and Electric Co., is being disposed of by his estate. Included among the equipment is a 150-kv., single-phase, 50-kva. testing transformer and a 75,000/200-volt, 60-cycle, 15-kva. Cottrell transformer. Other equipment includes generators, instruments, a three-element oscillograph and a synchronous klydonograph. Disposal of the equipment is being handled by Roy Wilkins, 1006 Matson Bldg., San Francisco, from whom details of all of the material may be secured.

▼

¶**Medford, Ore.**, recently passed an ordinance regulating sales of electrical material, devices and appliances, recognizing only those listed by Underwriters' Laboratories as standard. Frank H. Rogers, city electrical inspector, is in charge of the ordinance work. This brings the list of Oregon cities with such an ordinance, pioneered by Portland, to four. Eugene, Astoria and Portland are the other cities. Vancouver, Wash., also has a similar ordinance.

▼

¶**Maintains Sign Boards:**—A steady source of revenue is derived from the maintenance of the electrical installation of several hundred sign boards. Often new boards have to be wired or old ones re-wired. E. Downing, Independent Electric Co., Butte, Mont., has been doing this for the advertising sign company for the past eight or ten years. Work is done on a time and material basis and in this locality does not seem to be competitive.

the Industry hails the nationwide adherence to the New Code Standard in Flame Retarding Building Wire

By this TAG...
you identify both the new code building wire
AND THE MAKER!

All Standard Sizes and Types . . . Colored Outer Finishes for Polarity Distinction

CODE • INTERMEDIATE • 30%

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New Market at Portland Finished

The new Portland Public Market was opened Dec. 15, 1933, approximately six months after ground was broken. It is said to be the largest retail market of its kind in the world. The following statistics will perhaps bear this out.

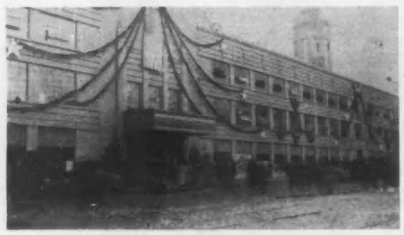
Cost of land and building, $1,325,000 (775,000 R.F.C.)
Cost of equipment privately installed, $160,000
One room, three blocks long, contains 2,000,000 cu ft.
Total of 220,000 sq. ft. floor space.
60,000 pounds of concrete
1,000 tons re-inforcing steel
20 miles of electrical wiring
2,000 lighting fixtures
10 miles refrigeration pipes
80,000 pieces of tile
42,000 pounds of paint
300 RLM reflectors
17,500 sq. ft. window space
10 city blocks of farmers' stalls
Rest rooms and lecture room air-conditioned
$60,000 heating plant
24,000 sq. ft. dry and cold storage areas
50 electrical motors, exclusive of lessees'
Car storage for 600 cars at one time.

It all reads like a page out of the year 1929.

Lawrence Holford & Allyn were the architects. NePage, McKenny & Co. were the electrical contractors fortunate to secure the wiring job, which, according to preliminary estimates will run to between $40,000 and $50,000.

Unusual Lighting in Public Market

The new building is located on the water front and is 135 by 616 ft. The



Partial view of the front of the Portland Public Market

main part is two stories and mezzanine, with basement under a portion of it. On a set-back are an additional two stories. Finally, two eight-story towers a block apart.

The first floor is all devoted to market display purposes—one room 600 ft. long. All displays of market produce are to be held to not over 4½ ft. in height. Therefore, the eye can take in the whole assemblage of stalls in one uninterrupted view. Directly over all this merchandise are rows of reflectors on 24-in. centers, a row over each row of stalls. This gives intensive illumination of the products themselves. For general illumination of the great room, resort is had to ceiling fixtures. The mezzanine surrounding this main floor is for sales rooms and offices.

The second floor, and above that the roof of the main building is given up to car parking facilities. These spaces, also, are 135 by 600 ft., reached by

Typical farmer's stall. Note reflector units, hung from Wiremold and spaced two feet apart to give intensive light on the produce. This picture was taken without flashlight and one-second exposure

ramps. Illumination in these parking areas is through the use of RLM reflectors on the second floor, while on the roof there are special angle reflectors located on the outer edges as well as spotlights.

Cold and dry storage facilities occupy the third and fourth floors, these spaces being 60 by 200 ft. There is a total of 200 RLM reflectors in the storage areas.

On top of each of the towers there is a huge glass lantern, 10 ft. in height with sides of opalescent glass. The interior will contain high power illuminating units which will make these lanterns visible at night for many miles.

On all sides of the towers below the lanterns there are to be neon signs, backed by aluminum panels, and the faces of the clocks on the towers are

Roof of the Portland Public Market used for car parking. It will accommodate 300 cars. As many more can be parked on the floor below. Top of one tower, which will contain one of the huge lanterns, is shown

transparent and will be illuminated from within. Also, the entire surface of the towers will be floodlighted. This work was not all completed by the opening day.

Altogether, this great building with its remarkable illumination both within and without, forms a splendid ornament to Portland's downtown water front, displacing row upon row of old buildings—relics of bygone days.

Wastes of Estimating

Now that the association enjoys a nearly 100 per cent membership and a record of estimated work is kept by the educational committee, the following survey is possible for the first time, Lloyd Flatland, president of the Electrical Contractors Association of Northern California announced. The survey covers San Francisco work during Nov. 1933.

During that time the total amount of electrical work submitted to competitive bidding represented a total market of $279,355.00. Of that total, there was actually contracted but $26,027.00, or less than 10 per cent. The balance may eventually be contracted, but at present it represents an uncertain potential business.

Adding together the total bids for labor and materials only, as represented by the combined estimates of all bidders during the month, a grand total of $1,778,141.00 is reached. This makes up a total from which it is possible to estimate the total cost to the contracting industry of its estimating time and effort for a single month.

If even so low a percentage as ¼ of 1 per cent is taken as the cost of this estimating, its cost to the industry in lost time and energy was $4,445.00. Divided among a hundred firms this is an average of $44.00 each. On the total volume contracted for, $26,027.00, this cost represents about 20 percent overhead in estimating cost alone.

Something to think about?

▼

Appoint Critic For Meetings

An interesting feature of meetings of the Vancouver Electrical Assn., the contractor-dealer organization of Vancouver, B. C., is the appointment each meeting of a "critic for the evening." This critic is appointed from among the membership and makes a critical comment for the betterment of the meetings of the association.

This organization now issues an attractive monthly booklet, "The Electric Eye," a feature of which is a two-page spread of current market quotations from the jobbers' warehouses in Vancouver. A campaign in which the B. C. Electric Railway Co. assists in developing wiring prospects is being carried on. Cards giving a list of contractors in each district are distributed by the district offices of the company.

▼

¶Precooling of cars in which produce is to be shipped provides a new load both for ice companies and the utilities. In the Santa Maria district of the Midland Counties Public Service Co. a 15-hp. motor operates a fan which blows over cakes of ice and then through the contents of a loaded refrigerator car. While not new to the valley territory, this innovation in the vegetable industry promises considerable load.

Motor Forum

—*An Idea Exchange*

for the Industrial Man and his practical problems, either mechanical or of policy

Field Test With a Compass

Relative polarity of an odd transformer about to be connected to a line for parallel operation is often unknown and must be determined. Various methods of ascertaining whether a transformer is of additive or subtractive polarity present themselves when power from a live line is readily available and measuring instruments are at hand. But when connecting transformers to a dead line in the field such convenient facilities are often absent. Fig. 1 illustrates a simple means of testing transformers for polarity under just such emergencies.

In this scheme an ordinary compass is made to answer the purpose of a galvanometer by winding a few turns of lamp cord around it. When connections are made to a dry cell—or automobile storage battery—and follow the diagram shown in Fig. 1, the compass needle will be deflected in a clockwise direction when the battery circuit is suddenly opened and the polarity of the transformer in question is additive. Should the transformer polarity be subtractive, the deflection will of course be opposite, or counter-clockwise.

Where even a compass is not available an improvised galvanometer can be made from a hack saw blade. The blade is first magnetized by winding a few turns of lamp cord on it and energizing the coil thus made by connecting to the battery terminals. It is then suspended on a thread in a manner permitting it to swing freely on its axis and thus function as a compass. In order to gain sufficient sensitiveness the moving element should be as light as possible, especially if a single dry cell is used instead of a storage battery.

Obviously, the duration of the deflecting current is but instantaneous and may fail to produce a sufficiently noticeable effect if the moving element is weighty and presents too much inertia. However, when using a single dry cell that is new, an ordinary hack saw blade will usually do.

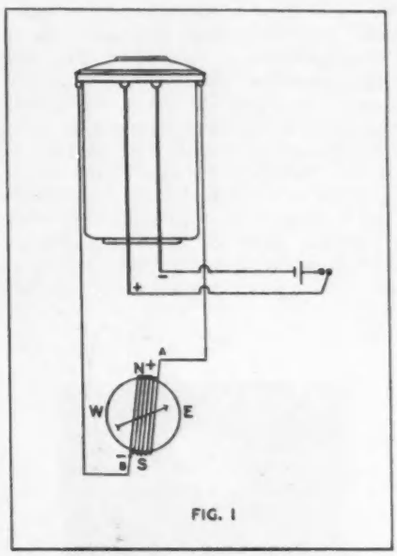


FIG. 1

Clockwise deflection of the compass needle when the battery circuit is broken indicates additive polarity of the transformer. This will hold true only if the polarity relations of the connections are exactly as per the diagram. Polarity of the compass coil must be such that positive current flowing into the compass terminal "A" will deflect the needle clockwise

▼

Street Within a Motor Shop

Like a street within a building is the motor sales floor of Norton & Norton, Los Angeles electrical contractors and dealers. The new and second hand motors and industrial equipment is placed on a wide floor area around which are a series of individual department offices which front on it like stores on a street. Thus the household appliance department, the main offices, and the repair shop departments are ranged in the rear and at one side of this floor. All of this floor has large plate glass window frontages on North Broadway, one of Los Angeles' most traveled thoroughfares, and is well lighted at night as an excellent advertisement.

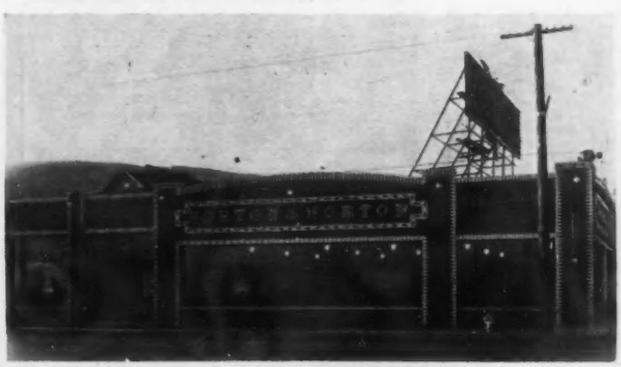
▼

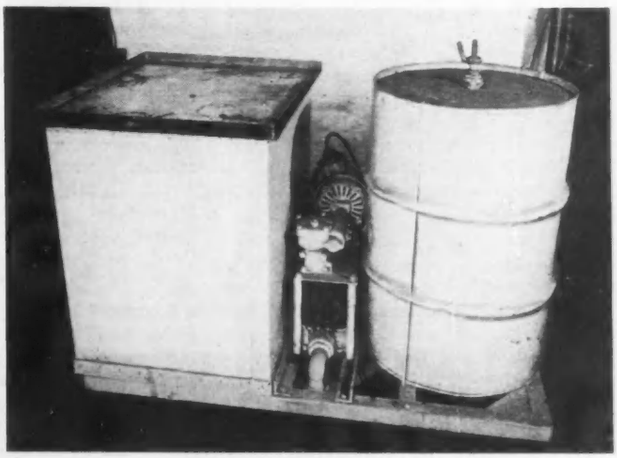
An attractive mailing piece outlining the full scope of the services which the Pacific Electric Motor Co., industrial electrical contractors of Oakland, Calif., can render was issued not long ago, utilizing what this company formerly issued as a monthly house organ, "Industrial Electric News." The pamphlet is illustrated by a number of photographs showing stocks, displays, work shop, special tools and some of the major jobs and large customers served by the company.

▼

Varnish Preserver

Just how to keep varnish, used in rewinding of coils and motors, from wasteful hardening and evaporation is a problem in most motor shops, but Backstrand Brothers, of Riverside, as usual have an effective answer of their own devising. Mounted on a steel framework, on casters, is a 24x30x30 in. tank, only high enough so that the floor crane, used in lifting motors, can straddle it. Next to this tank, on the same frame, is a 60 gal. steel drum, with a petcock mounted on top to admit or release air. Between the two tanks is a gear pump, connected to a ½-hp., 3 phase, reversible motor, through gear reduction. When varnish is required in which to dip a coil or motor stator or rotor, the motor is started, and varnish is pumped from the drum into the tank. When the dipping is finished, it is reversed and the varnish drawn back into the drum. The gear pump gives positive action and likewise acts as an excellent mixer when thinner is needed, the varnish and thinner being run back and forth between tanks. Because it is portable, too, the varnish tank unit is available to any part of the shop, or can be wheeled out of the way when not wanted.





S. F. Contractors Elect Langlais

Delayed by filing of articles of incorporation and by efforts to persuade Lloyd Flatland to remain in the presidency, if not for another year, at least for three months, the San Francisco section of the Northern California Chapter, National Electrical Contractors Assn., held nominations for this year's officers at the last meeting of 1933, Dec. 28. Charles A. Langlais was nominated for president; Lloyd Flatland consented to take vice presidency; and Kenneth Ryals, Stone-Ryals Co., was named secretary, to succeed Ed Martin, Sterling Electric Co. Mr. Flatland, Globe Electric Works, succeeds George Armstrong, as vice president. Since nominations were closed, the election is assured.

Executive committee members, in addition to the officers, include Charles Shipman, Atlas Electric & Engineering Co.; C. B. Kenney, Ne Page-McKenny Co.; Victor Lemoge; Tom Harris, H. S. Tittle Co.; George Draeger; and Bert J. Doherty, the latter two representing the Knob and Tube Club, or affiliated residential contracting group.

The meeting was called as a joint Northern Chapter and San Francisco section meeting, but storms made the northern chapter membership so small that nomination of officers for the chapter were deferred a month and a nominating committee appointed.

Featuring the meeting was a review of the progress and activities of the San Francisco group during 1933, the purpose of which was to illustrate the work and benefits that other localities might undertake to improve contracting conditions. It was shown that the San Francisco contractors, now nearly 97 per cent organized, were already functioning in anticipation of the electrical contracting code, had bargained with representatives of labor as to hours and wage scales, set up administrative, cost finding, educational, labor, wholesalers' relations, legislative, and incorporation committees, and that all were operating effectively. So effective, in fact, has been Mr. Flatland's leadership during the year, that there was strong effort made to have him continue until the NRA code is approved by the President and its machinery set in motion. Under Mr. Langlais, with Mr. Flatland in vice-presidency, and a strong executive committee, it is felt by members that the work will be carried forward with the present momentum. Mr. Langlais himself has been a leader in association and in civic affairs.

▼

¶**Symposium** of commercial lighting problems, under the chairmanship of George Rankin, Southern California Edison Co. Ltd., was the feature of the Dec. 14 meeting of the Illuminating Engineering Society, Southern California Section, Los Angeles. The discussion was participated in by four illuminating engineers from various manufacturers.

¶**A report** on the convention of the International Association of Electrical Inspectors at Chicago was the feature of the Nov. 15 meeting of the Southern California Chapter, I.A.E.I., according to Theodore C. Combs, secretary. Herbert G. Ufer, Western superintendent, Underwriters' Laboratories, made the report. Frank A. Short, electrical engineer, California State Industrial Accident Commission, announced the 1934 State Electrical Safety Orders as due about Jan. 1. W. L. Frost, vice-president, and H. C. Rice, manager of merchandising department of Southern California Edison Co., were hosts to a luncheon at the Jonathan Club, at which they explained the company's 1934 merchandising plan. R. H. Manahan, chief, Los Angeles City Electrical Division, led a discussion of 1933 N.E. Code interpretations. The next meeting is scheduled for Upland on Jan. 24.

▼

Energetic delegate to the National Inspectors' convention at the World's Fair was Al Cohn, of the San Francisco Department of Electricity. Chief Wylie delegated a large group of his inspectors to the meeting.

▼

¶**Doubles Up With Sign Painter:**—B. R. Hamilton, Hamilton Electric Co., Butte, Mont. rented the rear of his store and one front window to a sign painter and window decorator for his studio. Their work lies largely with the same classes of prospects. The decorator plugs for the contractor on window lighting and display lighting jobs where artificial lighting effects are required. Conversely the contractor gets the decorator in on many jobs of interior decoration and sign painting.

▼

¶**Gill Electric Co.**, 1227 Fourth Ave., San Diego, has recently completed wiring installations at the custom house at San Ysidro near Tijuana; the Point Loma lighthouse and the Carmelite Monastery in San Diego. A recent installation of highway lighting at Heber, Calif., was also made by this firm.

▼

¶**Seattle Plumbing Supply Co.**, in Seattle, Wash., has been appointed dealer for the air conditioning department of the General Electric Co. The firm will carry the full line of G.E. air conditioning equipment, including both small and large oil furnaces.

¶**A good load** but poor merchandise is to be found in a number of large wood frame electric signs being erected in southern California to advertise various movie houses. The signs employ simple pig-tail sockets with cheap lamps. Cheap lamps are used because they are stolen, according to R. A. Crosby, lighting engineer, Los Angeles Gas & Electric Corp. Golf driving ranges are still doing a good business, one installation there recently having 50 kw. of floodlighting. Beer gardens are providing new lighting load although most of them are small business financed on a "shoestring," and hence simple lighting is used.

▼

¶**Henry Zweifel**, for many years credit manager for the former Electric Appliance Co., then office manager for McGraw-Hill Co. of Calif. for some years, has been made assistant to A. M. Douglas, acting credit manager for General Electric Supply Corp., San Francisco. L. C. McDonald, credit manager of the company, is on leave of absence.

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43 Exchange Place New York

Practical Men » » »

McGraw Awards Announced

James H. McGraw Medals for cooperation and for the contracting industry were awarded last month, according to announcement just made by Earl Whitehorne, secretary of the committee of awards. Two medals and purses were awarded this year for cooperation, one to Charles E. Michel, sales manager, Union Electric Light & Power Co., and the other to Jack E. North, president of the Electrical League of Cleveland. Both have done outstanding work in cooperation for a number of years. Mr. Michel was cited for his creative leadership in coordinating the development of the electrical market in St. Louis and inspiring the electrical men of his state to united action in promotion and defense of their industry. Mr. North was cited for more than fifteen years of leadership in promotion of local league development. He is manager of one of the outstanding electrical leagues of the country.

Gerry M. Sanborn, president of the Sanborn Electric Co., Indianapolis, was awarded the medal and purse for the most constructive contribution to the advancement of the contractor-dealer branch of the electrical industry. His work in contributing to the National Electrical Code and for conceiving, developing and administering the "standard symbols for wiring plans," now used and become an American standard, were mentioned in the citation.

▼

¶**Fidelity Electric Co.**, formerly located at 5147 West Washington St., Los Angeles, has moved to 1836 South Mansfield.

▼

¶**Conn Franke** was re-elected chairman of the council, or equivalent of mayor, of the city of Stockton for another 4-year period at a recent election. Mr. Franke is a prominent contractor-dealer in the city.

▼

It must have been a code or at least an abalone hunt that caused Ralph Peterson, popular manager of the Garnett Young Co., San Francisco, to tell the world as he did in this picture. Glarence Gates, Roberts Mfg. Co., Oakland, seems to be enjoying the details.

¶**The executive committee** of the Northwest Section, International Association of Electrical Inspectors, recently met in Portland to discuss next year's convention plans. The convention will be held in Portland Sept. 17-19, 1934, with the Portland Electric Club sponsoring the meeting. Those present at the committee meeting were J. F. Julian, M. P. Hotelling, F. D. Weber, W. H. Brust, E. G. S. Pryor, J. J. Agutter, N. L. Bost, B. R. Stare and George I. Drennan.

▼

¶**"Si" Larson**, Pacific Coast representative of the Hubbard Co., and R. A. Buckby, promotion manager, Lamp Division, Los Angeles office of General Electric Co., were feature speakers at an all-electric program of the Electric Club of San Diego not long ago. J. F. Munro, manager, San Diego office, General Electric Supply Corp., was chairman of the day.

▼

Hard worker for the California electrical contractors' code was H. C. Reid, San Francisco contractor. He devoted many hours to the writing of a state "bill of rights."

▼

¶**Horace Adams**, Farnsworth Electric Co., San Francisco, was elected president for another year of the San Francisco Motor Dealers Association, which now includes the East Bay dealers as well. **Frank Boyd**, Pacific Electric Motor Co., Oakland, was named vice president, and Keith Noble, Buzzell Electric Works, San Francisco was again re-elected secretary-treasurer. The annual meeting was held at Marquards, Dec. 4. Mr. Adams has been president of the motor dealers group since its original organization, eight years ago.

▼

¶**George Foss**, electrical contractor of Sacramento, was re-elected councilman of the Sacramento City Council at a recent annual election.

▼

¶**The Louis Allis Co.**, Milwaukee, Wis., has announced the appointment of C. F. Cate, of Albuquerque, N. M., as representative for the company's products in that state.

▼

¶**C. Dent Slaughter**, for many years northern California representative of the Anaconda Wire & Cable Co., is now connected with that company at its New York office at 25 Broadway.

A. L. Stone, and one of his two hobbies

A. L. Stone, Secretary of New Chapter

"Individuals as well as communities will enjoy better business when each man does his own job better than before. The biggest fight in business is not with your competitors but with yourself. Do your own job right and you need have no fear of competition. Don't worry about the other fellow. Let him do his own worrying." Thus speaks A. L. Stone, secretary-treasurer of the new Southern California Chapter N. E. C. A.

Located for twelve years in a commercial and industrial section of Los Angeles, Mr. Stone has specialized in electrical installations in stores and industrial plants. He decided early in his career that this type of electrical work would always be good, no matter what happens. And, he has found that during this rehabilitation period, although few new buildings are being erected, many businesses readjust themselves in smaller quarters. Mr. Stone precedes the readjustment move with proper electrical installations for the new quarters.

Mr. Stone has two hobbies outside of business: A grandson and a motion picture camera.

▼

Candidly caught at his desk for a change, was Glenn Arbogast, president of the new southern California chapter, N.E.C.A., whose association activities have absorbed so much of his time

The UNIVERSAL

multiplies the advantages of outdoor metering...

POWER company experience has shown that the savings resulting from the protection of revenue and the reduction of meter-reading costs fully justify adoption of outdoor metering as standard practice.

But why be satisfied with only these two advantages? The universal detachable meter adds other advantages so important that it should be thoroughly investigated by every power company before standardizing on any type of outdoor metering.

Briefly, its chief advantages are:

1. *It reduces the cost of the change to outdoor metering*—All of your present stock of meters that are accurate enough to warrant keeping in service can be remounted as universal detachable meters with type S armor-mounting parts at very low cost.

2. *It provides complete interchangeability*—Since there are no external attachments or equipment, the detachable meter, completely self-contained, is universally interchangeable. All new CS meters, and all old meters armor-mounted with type S parts, are interchangeable in the standard socket.

3. *It simplifies stock requirements*—Because of the complete interchangeability of both meters and armor-mounting parts, capital and warehouse space need not be tied up with large stocks of parts and accessories. As old meters are replaced with the new CS, a further reduction in stocks is accomplished because only three ratings of the CS—5, 15, and 50 amperes—are required to meter all loads.

4. *It facilitates service connection or disconnection*—The meter can be plugged in and out of the socket like a radio tube. Disconnected meters can be returned to the warehouse to reduce meter investments, and to prevent injury to meters in vacant houses. Service wires need not be disturbed because a cover plate seals the empty sockets.

5. *It cuts time and cost of testing*—A test jack for "in-place" testing eliminates the expense of permanently-installed test facilities and gives "dead front" testing. Laboratory testing for all meters becomes possible because of the ease with which meters can be changed.

You should know all the other advantages that result from the use of the Universal Detachable Meter, as well as the savings it can effect. Our new booklet, "The Economy Calculator," gives detailed information on the metering system using the universal detachable meter. It also makes it easy for you to calculate the annual net return to your company from the use of this metering system. Send the coupon for your copy.

SEND FOR ECONOMY CALCULATOR

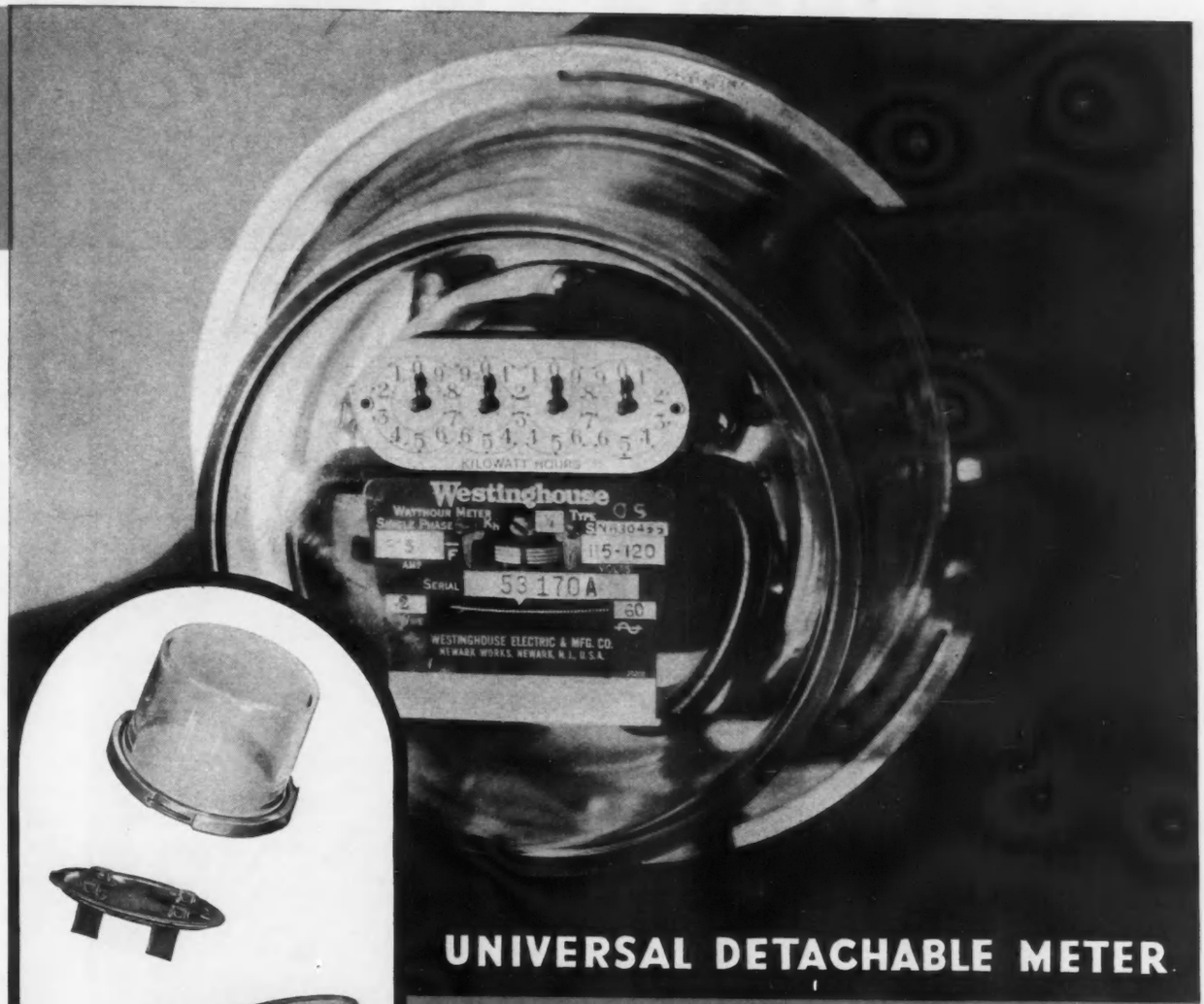
Westinghouse Electric & Manufacturing Company
Room 2-N—East Pittsburgh, Pa.
Gentlemen: Furnish me with a copy of your new Economy Calculator, which makes it easy to calculate the returns from applying the New Metering System to my lines.

Name .....
Title .....
Company ..... T 79714
Address ..... E-W 1-34

Westinghouse

Quality workmanship guarantees every Westinghouse product

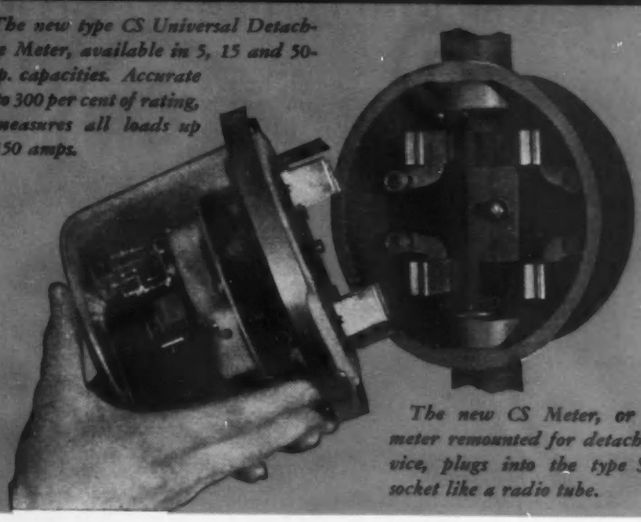
DETACHABLE *Meter*



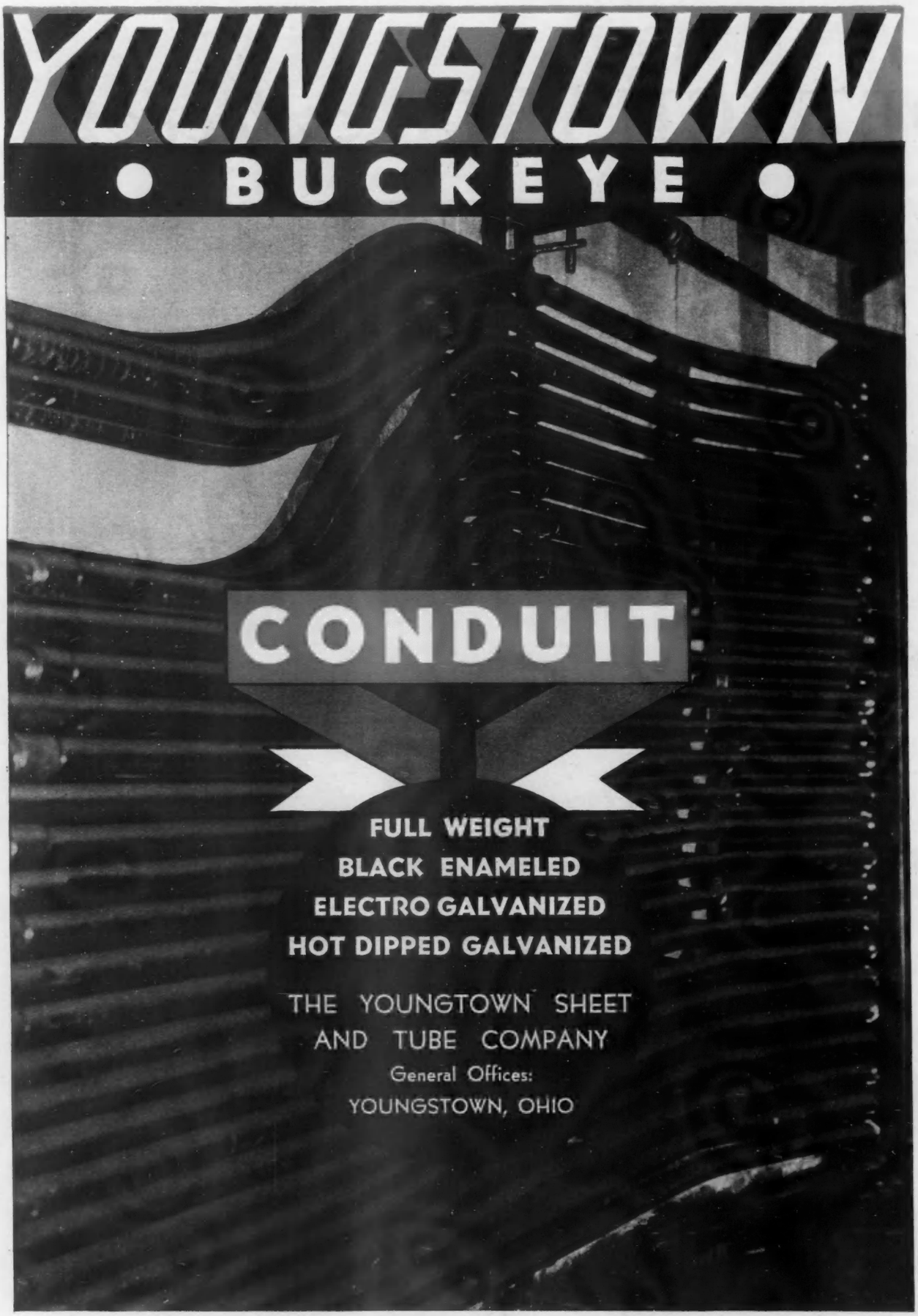
UNIVERSAL DETACHABLE METER

Only four type S parts are required to remount old meters for universal detachable service. Bottom to top: socket, sealing ring, base plate and cover.

The new type CS Universal Detachable Meter, available in 5, 15 and 50-amp. capacities. Accurate up to 300 per cent of rating, it measures all loads up to 150 amps.



The new CS Meter, or any old meter remounted for detachable service, plugs into the type S Meter-socket like a radio tube.


YOUNGSTOWN
• BUCKEYE •
CONDUIT
FULL WEIGHT
BLACK ENAMELED
ELECTRO GALVANIZED
HOT DIPPED GALVANIZED
THE YOUNGTOWN SHEET
AND TUBE COMPANY
General Offices:
YOUNGSTOWN, OHIO

¶ **Drendell-Trumbull Electric Mfg. Co.,** San Francisco, will distribute the entire line of materials and equipment manufactured by the Trumbull Electric Mfg. Co. and its affiliated companies in this territory effective Jan. 1, accordinging to an announcement by L. Siebert, manager. Previously the various lines were distributed through separate sales organizations.

▼

¶ **John H. Maddox,** Pacific Coast manager of the Duplexalite Division of The Miller Co., recently returned from a trip through the inter-mountain states where he reports business is improving materially as the result of the tri-state cooperative business-building campaign being sponsored by the Electrical League of Colorado and the Rocky Mountain Electrical Assn.

▼

¶ **California Electric Works, Ltd.,** motor and industrial contractors of San Diego, are actively developing lighting business by means of a photronic foot-candle meter. Surveys of industrial and commercial buildings are offered and the "electric eye" is a convincing sales tool.

▼

¶ **Mongerson's Electrical Machine Works,** Bakersfield, Calif., makers of safety switches, has announced the appointment of the following representatives who will sell the company's line of safety switches through established electrical wholesalers: Leonard Sales & Supply Co., 900 N. W. 13th Ave., Portland, for the state of Oregon; Allied Industries, Inc., 455 2nd St., San Francisco, for California north of Kern county, the state of Nevada and the Hawaiian Islands; Zinsmeyer, Inc., 717 Mateo St., Los Angeles, for southern California; L. Vernon Wilson, Phoenix, Ariz., for Arizona.

▼

¶ **Benjamin Electric Manufacturing Co.** has announced the transfer of M. L. Fowler from the Northwest territory with headquarters in Seattle to the southern California territory, for which he will be in charge, with headquarters in Los Angeles, replacing Tom McDonough, for many years representative there.

▼

¶ **Floodlighting** representatives in southern California were recently brought together upon the suggestion and organization of Jim Shirreffs, president, S. & M. Lamp Co., Inc., of Los Angeles. Several meetings have been held to discuss problems of mutual interest in connection with the sale of floodlighting equipment. The following firms have been represented at the meetings: S. & M. Lamp Co., Kim Manufacturing Co., General Electric Co., Westinghouse Electric & Mfg. Co., Crouse-Hinds, Curtiss Lighting Inc., Pittsburg Reflector Co., and Benjamin Electric Mfg. Co.

▼

¶ **California Electric Co.,** formerly at 117 East Chapman Ave., Orange, Calif., moved to 429 South Olive St., that city.

New Devices » » »

to Use on that Next Job

Vibration-Proof Lamp

Hygrade Sylvania Corp., New York City, has perfected a new lamp intended to withstand service in locations where intense vibration exists. The new lamp supplements the standard 50-watt mill type, being available in a 100-watt size. The lamp employs a special filament wire which is used in the conventional ring-type filament and is held by six filament supports. Flexible spring wire supports the glass arbor and the tie wires holding the lead wires to the arbor. The entire mount thus can vibrate as a whole in tune with the vibration of machinery, wheels, building or other cause.—Electrical West, Jan., 1934.

▼

Surge Protection

Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., announces a 96-page catalog entitled "Westinghouse Surge Protection," containing information on the complete line of Westinghouse surge protection devices. All the necessary information to aid in buying equipment is included, such as discussions of the application, prices, instructions for ordering, approximate multipliers, style numbers and index.—Electrical West, Jan., 1934.

▼

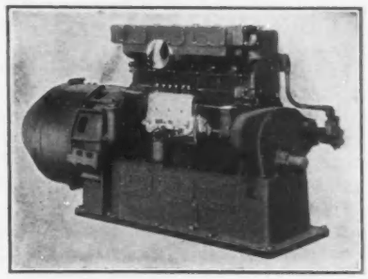
Transfer Switch

Delta-Star Electric Co., Chicago, Ill., has developed a new 400-amp., 7½-kv., single-pole, double-throw, front and back connected transfer selector switch with 90-deg. blade stop and blade locks. The non-magnetic supporting base is provided with U-bolts for pipe mounting and the terminals are arranged for direct bolt connection to copper buses.—Electrical West, Jan., 1934.

▼

Line Start Switches

The Allen-Bradley Co., Milwaukee, Wis., has perfected a new automatic across-the-line switch of the solenoid-operated type. It is rated at 5 hp., 220 volts; 7½ hp., 440 to 550 volts for polyphase motors up to 1½ hp., 110 volts and 3 hp., 220 volts for single-phase self-starting motors. It is available with start and stop push buttons; without push buttons for thermostat or remote pilot control and with two-way hand-automatic switch for "try-out" control installations. It has small cabinet dimensions and is equipped with double-break silver alloy contacts. It also incorporates a newly patented arc hood for suppressing the arc.—Electrical West, Jan., 1934.



Small Diesel Generators

The Buda Co., Harvey, Ill., announces a new line of M.A.N. "shock absorber head" six-cylinder diesel generating sets available in sizes from 10 to 90 kw. The units are of the high-speed type and are semi-automatic. The units are available in a wide range of voltages both alternating and direct current. Cost of energy generated is claimed to be approximately ¾ to 1 cent per kilowatt-hour, depending upon load factor. In addition to the diesel sets, a small generator set fitted with natural gas or gasoline engines of similar design, ranging from 5 to 75 kw., has also been placed on the market by this company.—Electrical West, Jan., 1934.

▼

Insulator Catalog

Ohio Brass Co., Mansfield, Ohio, has just issued a 32-page catalog showing the complete line of O-B pin-type insulators, strain insulators, fittings, and pins. A new development in strain insulator fittings is fully described and listed. Discussions pertaining to field problems encountered in the construction of pin-type lines are also a part of this bulletin.—Electrical West, Jan., 1934.

▼

New Tree Wire

General Electric Co., Schenectady, N. Y., has announced a new rubber insulated tree wire which is extremely resistant to abrasion. It may be strung through foliage without damage to trees and it withstands abrasion caused by the swaying of branches in the wind. The new wire is available for service up to 8,000 volts. It is made up of copper conductor, either solid or stranded, insulated with 40 per cent rubber on low-voltage cables and corona-resisting rubber on high-voltage cables, with a waterproofed protective covering and a weatherproofed cotton braid overall. The possibility of short circuits and leakage is prevented by a spirally wound, impregnated fibrous cord which produces a non-metallic armor having exceptionally high resistance to abrasion.—Electrical West, Jan., 1934.

▼

Insulation Test Set

Sound Engineering Corp., Chicago, Ill., has developed a new instrument for testing the dielectric strength of sheet material such as plain paper, gummed or varnished paper, cloth, varnished cambric, rubber, mica and other insulating materials. Means are also provided for testing complete units such as transformers, coils, insulated wire and the like. The unit is self-contained and has a voltage range from 200 to 10,000 volts. Various safety devices are incorporated into the design to protect the operator. The unit is priced at $150.—Electrical West, Jan., 1934.

▼

Capacitor-Start Motors

The Louis Allis Co., Milwaukee, Wis., announces a new line of capacitor-start, single-phase motors. Two features of these new motors are the built-in capacitor and the automatic cut-out switch. The motors are available in sizes ranging from ⅓ to 3 hp. in either vertical or horizontal types and other sizes will be added to the line.—Electrical West, Jan., 1934.

What's New?

California Votes Water and Power Act

Efforts are being exerted by the state of California to secure a federal loan and grant of $170,000,000 for financing the central valley water project which was approved when the so-called "water and power act" was passed by the scant majority of approximately 35,000 votes out of a total of approximately 850,000 in a special election on Dec. 19.

The act, A.B. No. 259, was passed at the last session of the state Legislature and was referred to the people by referendum. It creates the California Water Project Authority as a state agency having broad powers to construct and operate the project and to engage in the water and power business. The authority comprises the attorney-general, state controller, state treasurer, state finance director and state public works director.

Passage of the act is credited to have been due to popular antagonism toward utilities in general and to the light vote which was cast. Only slightly more than 40 per cent of the registered voters in the state went to the polls. Belief also that the act could be financed with Federal help, plus the fact that in several sections of the state the water situation is extremely acute contributed materially to the affirmative vote.

The act incorporates many of the features of the water and power acts defeated by voters of the state by large majorities in 1922, 1924 and 1926. It gives the Water Authority power of eminent domain; gives the state precedence over private owners in the matter of water rights; provides for the letting of contracts to municipalities and other political subdivisions for the sale of water and power and permits the granting of preference to local political subdivisions in the matter of granting these contracts. It includes provisions permitting any state agency, the state itself or any department, board, commission, bureau, division or office of the state to loan or contribute money, rights-of-way, labor, materials, and any other property for the construction, operation or maintenance of the project or any unit of it. It authorizes any political subdivision to bond itself for the purpose of making a contribution to the project. These contributions or advances may not be repaid until all obligations issued by the authority for construction of the project have been redeemed.

Incorporated in the project are plans for the construction of dams, reservoirs, power plants, canals and pumping stations primarily for the conservation of water and for the alleviating of the acute water shortage in certain sections of the San Joaquin Valley. Major unit will be the Kennett Dam on the Sacramento River in Shasta County, a structure 420 ft. high, impounding 2,940,000 acre-ft. of water. A power house with a capacity of 275,000 kva. will be constructed below the dam. An additional feature of this phase of the development is the Keswick afterbay dam with a 50,000-kva. power plant. Estimated output of these two plants is 1,600,000,000 kw.-hr. annually. A 200-mile high-tension transmission line with a capacity of 260,000 kw. would be constructed from the plants to Antioch.

A second dam 252 ft. high impounding 400,000 acre-ft of water would be constructed at Friant on the San Joaquin River in Fresno and Madera Counties. Power plant capacity at this dam would be 30,000 kva., with an estimated output of 105,000,000 kw.-hr. annually. In addition there would be a series of canals for transferring water from the Sacramento to the San Joaquin Valley together with a series of pumping plants to raise the water to proper levels for use in irrigation.

Among the arguments brought out against the act was the fact that of 54 irrigation districts in counties to be served by the project, 39 have bonds outstanding amounting to $53,927,000. At the present time 82 per cent of the districts and 79 per cent of the bonds are either in default or else have been refunded to avoid default.

A preliminary application for a federal loan and grant has been on file with the Public Works Administration since the formation of that body. This application will be amended and expanded now that the act has been approved. Informal statements have been made by various officials in Washington to the effect that Pacific Coast states can expect little more in the way of federal financing due to the large number of projects on which federal aid has already been secured, including the San Francisco Bay Bridge and the Metropolitan Aqueduct system.

▼

Washington Budget Law Gets Court Test

Granting of a temporary order restraining the Washington Department of Public Works from holding a hearing on a complaint filed against the 1934 budget of the Puget Sound Power & Light Co. marked the first step in a legal battle to test the validity of a law passed by the 1933 legislature giving the department authority to review budgets of public utilities in Washington. The order followed a petition filed by the company in the Thurston County superior court for a writ of prohibition to restrain permanently the department from holding a hearing on the budget complaint and from proceeding further against the company.

Acting on its own motion, the department had cited company executives to appear December 22 to show cause why striking reductions in salaries and other expenses listed in the budget should not be made.

An order prepared by the department for immediate issuance proposed that $81,900 allowed for "transfer agent service" and "supervisory service" should be entirely eliminated in so far as they are charged against consumers. Other amounts to be entirely eliminated were $8,306 for "donations" and $7,200 for "educational instruction."

An advertising item of $161,000 was to be cut to $80,000 and $18,438 was ordered to be eliminated from the budget for "dues and payments to organizations," leaving only $2,450 for the company's membership in the Northwest Electric Light & Power Assn. and the Edison Electric Institute. Legal expenses budgeted at $53,000 were to be reduced to $25,000 and "regulatory commission expense" of $97,000 cut to $37,000.

Proposed cuts in salaries budgeted for officers and employees included: Frank McLaughlin, president, $24,000 to $15,000; W. H. McGrath, executive vice-president, $19,000 to $10,000; F. W. Brownell, treasurer, $13,000 to $7,500; L. R. Coffin, vice-president, $11,000 to $7,000; S. P. McFadden, vice-president, $10,300 to $6,000; C. C. Curtis, district manager, $10,300 to $6,000; W. M. Bird, district manager, $9,000 to $5,000; H. J. Gille, manager, agricultural and industrial development department, $8,500 to $6,000; and G. E. Quinan, chief engineer, $7,470 to $6,000. Seven employees receiving from $500 to $600 per month were to be reduced a total of $8,816; seven getting from $400 to $500 monthly to be reduced $5,529, and fifteen in the $300-$400 class, a total of $5,708.

The department's order stated that "the payment is objected to only in so far as the rate payers are concerned and the utilities may make the expenditures objected to provided they are charged to that portion of their income allowed for return to stockholders."

Similar proceedings have been instituted by the Department of Public Works against The Washington Water Power Co. The complaint against this company was the first to be filed under the new law. In it the department challenged all but $15,000 of $36,000 annual salary of F. T. Post, president.

Other items objected to included $10,043 in donations "in connection with the operations in Washington cities"; $90,918 in service fees paid to the Electric Bond & Share Co., and $9,626 in dues and payments to "organizations in Washington cities and towns." The total amount questioned by the department was $131,587. The department stated that "the objection is to the payment of said donations, dues, service fees and excess salary for the reason that the same are not necessary or proper charges in so far as the rate payers of the utility are concerned."

Hearings on the petition of the Puget Sound Power & Light Co. will commence in the Thurston County superior court on January 25.

Oregon Utilities Escape Higher Taxes

A special session of the Oregon legislature adjourning Dec. 9 failed to follow the recommendation of the governor as to taxing the revenue of public utilities for the benefit of the schools and as to providing for the state transmission of Bonneville power. As far as public utilities were concerned, it contented itself with correcting technicalities in existing laws, and with providing for an interim committee to study the question of the distribution of Bonneville power to report at the next regular session in 1935.

Proposal to bring in new tax money for the relief of the distressed school districts by a tax on public utility revenues was met with a flood of protest from employes and stockholders in all parts of the state. This movement, starting with letters spontaneously inspired and written by a few employes of Portland General Electric Co., rapidly spread without the impetus of any organization until the thousands received by the legislators convinced them of the inequitableness of the proposal and resulted in the quiet demise of the measure in committee. School relief was provided for by a privilege tax of 1½ per cent on retail sales of personal property and utility services, same to be paid by the purchaser.

Confusion of opinion as to how to provide for state purchase of Bonneville power and transmission of it and the extent to which bonds for the construction of transmission lines should be provided led to an attempt to compromise between three bills which failed of success, and the final passage of a joint resolution calling for the appointment of the interim committee referred to above. Other attempts to inject legislation referring to the regulation of utilities into the business of the special session, failed.

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Bone Power Bill Up Again in Washington

Backed by the written endorsement of U.S. Senators Clarence C. Dill and Homer T. Bone, a constitutional amendment to permit the state of Washington to erect and operate a state-owned high-tension power transmission system has been introduced at the special session of the Washington legislature. The amendment requires a two-thirds vote in both houses for submission to voters at the 1934 election. At the last regular session of the legislature a similar measure fell three votes short of a two-thirds majority in the state senate.

The amendment would authorize the state to provide transmission lines which would tie together the present city-owned systems and the federal power developments at Grand Coulee and Bonneville. It includes authority to incur indebtedness not exceeding 5 per cent of the assessed value of property in the state, either in the form of general obligation or revenue bonds. The act would empower the state to lease water and power sites for development and to transmit, distribute and sell energy. It would also authorize the state to enter into contracts with the federal government and with political subdivisions within the state for the purchase or sale of power. It provides for an elective board of three members to administer the state-owned system. Measures similar to this have been defeated previously both in the state legislature and in public balloting.

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Heart Attack Takes Albert Casper

Albert Casper, president and general manager of the Vallejo Electric Light & Power Co., died at his home in San Francisco on Dec. 9 following a heart attack. His entire business career had been in the electrical industry. Following his graduation from the University of California in 1908 he took a position

in the Vallejo utility which had been started by his father. He became general manager in 1915 and president five years later. In addition to the power company, he owned and operated the Alca Electric Co., a merchandising subsidiary of the utility, around which he developed a cooperative load-building activity in which all dealers and contractors in Vallejo participated.

Mr. Casper was extremely active in the civic affairs of the community in which his company served and was for a time president of the Vallejo Chamber of Commerce. He is credited with having assisted materially in the retention of the United States navy yard at Mare Island when a movement was on foot to transfer the yard to another site on San Francisco Bay. He had recently been elected a director of the Pacific Coast Electrical Bureau and was for many years an active figure in the committee work of the Pacific Coast Electrical Association. Since his death the affairs of the company have been administered by his brother, Dr. E. J. Casper.

▼

Voters of Bellingham, Wash., have rejected a proposition to issue $150,000 in utility bonds for the establishment of a city-operated power plant. The purpose of the plant was to supply energy for city buildings and street lighting.

Silver Creek Power Negotiations Stop

Negotiations between the Pacific Gas and Electric Co. and the Sacramento Municipal Utility District for the sale of power to be developed in connection with the Silver Creek water supply project have been terminated following passage by the district directors of a resolution recommending such action.

Action by the directors followed the submission of a tentative agreement by the Pacific Gas and Electric Co. in which power purchase terms were outlined. The company proposed to absorb the power in proportionately increasing amounts over a four-year period.

The district has received an allotment of $11,700,000 for the water development from the federal public works administration. In its initial application it asked for $15,700,000. Work on the project cannot start until a bond election is held and until contracts for water and power which will assure self-liquidation have been entered into by the district. Since the break in negotiations the City of Sacramento has asked the Railroad Commission for an estimate of the valuation of the company's facilities inside the city limits.

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Weaverville Votes For Utility District

Formation of a public utility district to acquire and operate a publicly owned electrical system was voted at Weaverville, Calif., by approximately 3½ to 1 in an election on Dec. 21. Despite an announcement made by the Weaverville Electric Co. a few days prior to the election of a 12½ per cent reduction in rates, the proposal carried with a large majority. With the formation of the district, application will be made to the Railroad Commission for a valuation of the privately owned system serving the territory looking toward ultimate condemnation. Before confirmation of this step it will be necessary to vote revenue bonds for the purchase of the private utility's properties.

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Flathead Project May Be PWA Development

Completion of the development of the Flathead power project in Montana as a federal undertaking through the expenditure of $5,000,000 in public works funds has been recommended by the subcommittee of the senate committee on Indian affairs.

Initial power development at this site had been undertaken by the Rocky Mountain Power Co., a subsidiary of the Montana Power Co., which obtained a license for the development in May, 1930. Construction work undertaken subsequently was stopped early in 1933 after the expenditure of considerable money on prelicense costs, construction and other developments. Since that time the company has applied for an extension of the license with modification of the original terms.

8 YEARS OLD

65 YEARS IN BUSINESS

In 1869, Gray and Barton; in 1882, Western Electric Supply Department; since January 1, 1926, GRAYBAR

Utility Sues When Sign Falls on Lines

Damages of $103,209.42 are sought by Los Angeles Gas and Electric Corp. in a suit filed in the Los Angeles County superior court against the Rocket Oil Co. and Beaumont & Hohman, advertising agency, charging them with responsibility for interrupting electric transmission which deprived thousands of the company's customers of service on the evening of November 29.

Negligence and trespass on the company's property form the basis for the complaint, which claims that a large aerial sign, released by the defendants as an advertising stunt at a football game in the Los Angeles Memorial Colisuem, crashed into the Seal Beach-Los Angeles high voltage transmission line some 18 miles southeast of the stadium and caused an immediate stoppage of service.

Several thousand customers were without electric light, heat and power for periods ranging up to seven minutes from the time of the interruption when linemen were able to clear away the wreckage of the 19-foot streamer. No provision was made for control of the sign while in the air, either as to direction or return to the ground, it is alleged.

Commenting on the action, Paul Overton, attorney for the public service company, who filed the complaint, said: "This case may easily become a forerunner in the development of rules of law defining the rights of property owners in the event of an invasion from the air, the use of which is now becoming more and more commercialized. Undoubtedly, it will be of great interest, not only to the public in general but to those companies in particular who are charged with the duty of maintaining continuous public service and whose instrumentalities are more likely to be seriously affected by commercial use of the air than other classes of property."

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P.G. & E. Takes Rate Case to Courts

Hearings on the suit to enjoin the California Railroad Commission from enforcement of its order reducing rates for natural gas to a point estimated to bring a return of 6.6 per cent on the commission's valuation will start in the federal courts in San Francisco on Jan. 11. A temporary restraining order was granted by Federal Judge Harold Louderback on Dec. 14.

Announcement that the company had brought suit brought forth the following statement from Clyde L. Seavey, president of the commission: "I wish to give it as my personal opinion that if exorbitantly paid utility executives and high priced attorneys can delay so just and reasonable an order as this, the only adequate protection the consumers of this state have is public ownership. And the sooner they get it the better."

The complaint filed by the company is based on asserted violations by the commission of the fourteenth amendment to the federal constitution and asserts that the commission's order deprives the plaintiff of its property and the use thereof without due process of law, denies the plaintiff of equal protection of the laws and takes the plaintiff's property and the use thereof for public use without just compensation. The contention is made by the company that a fair valuation of its properties is $114,000,000 as compared with the commission's valuation of $105,000,000. This difference in valuation and the low rate of return form the basis for the suit.

This is the first time in 21 years of operation under commission regulation that the Pacific Gas and Electric Co. has taken a commission order into the courts. In a statement issued at the time suit was filed, A. F. Hockenbeamer, president of the company, called attention to the fact that no increases in rates were allowed at the time the federal kilowatt-hour tax of 3 per cent was transferred from consumers to the company or to offset an increase of approximately $1,250,000 a year in taxes voted at the last Legislature. He stated that "under the rates established in the decision of the Railroad Commission the company would receive approximately the same total net revenue for depreciation and return which it received in the year 1929, although in the meantime the company's investment in gas properties has been increased by approximately $27,000,000."

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Coeur d'Alene Votes Municipal Plant

By a vote of approximately 2½ to 1, or slightly more than the two-thirds majority necessary, the electorate of Coeur d'Alene, Idaho, on Dec. 12 passed a general obligation bond issue of $600,000, half for the purchase or construction of a municipal water system and the other for the purchase or construction of a municipal light and power plant.

This was the third election on the question of municipal ownership in 2½ years. In the last election in January, 1932, a revenue bond issue was carried by nearly 3 to 1 but was declared unconstitutional in the Idaho State Supreme Court.

▼

That the Grand Coulee and Bonneville power projects may be administered under a Columbia River Authority patterned after the Tennessee Valley organization is the latest report from Spokane, Wash. At the present time work at Bonneville is proceeding under supervision of the U.S. Army engineer corps, while at Grand Coulee the U.S. Reclamation Bureau is supervising operations pending the enactment of a contract between the state of Washington and the federal government.

C.R.E.A. Outlines Program for 1934

Projects to be undertaken by the California Committee on the Relation of Electricity to Agriculture during 1934 will include further studies of the reactions of insects to monochromatic light with particular attention to further field tests for lighting equipment already perfected, additional investigations of the economic phases of soil heating together with a development of miscellaneous agricultural uses for soil heating cable and a continuation of studies on air conditioning. In addition, a rural electric short course for utility company agricultural power sales engineers will be held sometime during the year.

Soil heating, irrigation developments, electric sterilization of soil and unusual uses of electricity on California farms were important features of the curricula of the rural short course conducted by the staff of the College of Agriculture of the University of California at Davis which was held Dec. 4-6. Attendance at the course this year numbered 52, the largest since this type of undertaking was initiated in 1928.

▼

Washington Upholds Tax on Municipals

Legality of that provision of the Washington state new business tax law imposing a 3 per cent tax on the gross revenues of municipally owned utilities has been upheld in a decision by Judge D. F. Wright, of the Thurston County Superior Court. The decision denied the city of Tacoma an order restraining the State Tax Commission from collecting the tax on the city's municipal power system revenues. Yakima, Walla Walla, Spokane, Seattle, Bellingham, Bremerton and Aberdeen had joined Tacoma in the suit.

In sustaining the demurrer brought by the State Tax Commission, the decision indicated, however, that the state could not collect the tax if the municipal utility would be impaired in paying its bondholders.

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Rates Cut—Plant Shuts Off Lights

Electrical consumers of Connell, Wash., learned what it is like to be without electrical service when the Connell Light & Power Co. shut down its plant on Dec. 15 when the company decided a recent order of the Washington Department of Public Works cutting its rates was more than it could bear.

The town was without service for approximately 24 hours until the Department of Public Works could secure a writ of mandate from the Thurston County Superior Court to compel the company to resume operations. The court set Jan. 8 as the date for a formal hearing on the department's petition, directing the company to maintain service in the meantime.

Rates Cut 10 Per Cent For Utah Utility

Rate reductions averaging 10 per cent for the southern Utah territory served by the Telluride Power Co. have been ordered by the Utah Public Utilities Commission. The order is the result of an investigation undertaken by the commission last March.

In ordering the reduction, the commission took cognizance of the fact that the earnings of the company would be cut below the point generally considered as a fair return but ruled that under existing economic conditions rates charged at present are more than the service is worth to consumers. The commission held that "it would seem that the basic principle or rule laid down by the courts is that regardless of what the effect may be upon the costs of operation of the utility or its financial conditions, the cost to the consumers should in no event exceed what the services are reasonably worth to them." A review of the company's operations showed that during the last five years it earned an average of 4.07 per cent on its fixed capital investment and for the year ending Dec. 31, 1932, earnings were but 2.59 per cent.

Despite the fact that the company held that the new rates were confiscatory, the commission in its order stated: "It is quite true that any material reduction of the rates of the company would mean service at rates quite generally held by the courts and commissions to be confiscatory, but it should be remembered that the company has voluntarily chosen the field or territory of its operations and accepted the franchise privileges granted it by the state with the avowed purpose of the development of its potential resources. With such purposes in view, it has been and is now pioneering quite as much as were its patrons engaged in agricultural, mining and commercial pursuits. We believe it should, therefore, in some measure be held to meet the exigencies of the times with them, if for no other reason, as a matter of self-interest and preservation."

▼

Seattle Skagit Loan Held to Be Unlikely

Seattle's City Light Department has little chance of securing a $26,500,000 loan from P.W.A. for further construction on the Skagit hydro-electric project, according to a letter from Secretary of the Interior Ickes to Mayor John Dore. The letter says:

"The application has been turned over to the civil works administration, which is now considering what may be done in the way of preliminary work, clearing right-of-way, etc. I am hopeful that a great deal of such work may be undertaken. The facts of the situation are that of the $3,300,000,000 public works funds, which is nearly exhausted, the state of Washington has already received a generous share. Accordingly, public works is concentrating its efforts to distribute the remaining allotment among those localities which have not fared so well."

▼

¶ **Representatives** of improvement associations in Denver have served notice on the city council that unless immediate steps are taken to investigate electric rates charged by the Public Service Company of Colorado an ordinance with be initiated setting forth new rates. In a petition filed with the council the statement was made that "after comparison of light rates charged in Denver and in other cities it has been determined to the satisfaction of these petitioners that the electric rates are as unreasonable and exorbitant as the gas rates." Charges for gas have been under investigation by the council for several months.

▼

¶ **Application** of the Southern California Edison Co. Ltd. for a writ of review in the matter of the decision of the California State Railroad Commission's valuation of $228,000 for the company's distribution system in the city of Tulare has been granted by the California Supreme Court. In its application the company holds, among other things, that the commission failed to allow just and reasonable severance damages. Two members of the State Railroad Commission dissented from the majority opinion on the same grounds.

▼

¶ **Hearings on rates** charged for street lighting in approximately 100 cities and towns in the state of Washington have been set for January 8. Originally scheduled for December 11, the hearings were postponed to permit engineers of the state board of public works to complete valuations of street lighting facilities including lamps, fixtures, wires and poles in 221 incorporated towns and cities and 52 unincorporated towns and villages. The hearings will affect 45 utilities operating in the state.

▼

¶ **Editors and publishers** of community and foreign language papers in Los Angeles were recently guests of the Bureau of Power and Light on an inspection trip to the Bouquet Canyon reservoir, now under construction, and to the San Francisquito power plants. Features of the trip included an electrically cooked dinner and a talk on the growth of the Los Angeles municipal electric system by A. W. Elliott, manager of the electrical appliance division of the bureau.

▼

¶ **Application** of the Southern Sierras Power Co. to lease a 40,000-kva. generating unit at the Boulder Canyon power plant has been denied by Secretary of the Interior Ickes as the result of protest filed by the Los Angeles Bureau of Power and Light. The protest was based on the ground that the lease was in violation of the existing contract between the bureau and the federal government.

Harry Harper Heads Los Angeles C of C.

Harry L. Harper, vice-president of the Graybar Electric Co. in charge of the Pacific Coast territory, has been nominated for the post of president of the Los Angeles Chamber of Commerce. Mr. Harper, in addition to taking a leading part in the electrical industry in California, has long been active in Los Angeles civic affairs. During the recent campaign to put into effect the provisions of the National Recovery Act, Mr. Harper was general and chief in charge of the Los Angeles area activities. The chamber's nominations for the board of directors include among others the names of Dr. Robert A. Millikan, head of the California Institute of Technology, Dr. R. B. von KleinSmid, president of the University of Southern California, and Ben R. Meyer, president of the Union Bank & Trust Company and a director of the Southern California Edison Company Ltd.

▼

¶ **William L. Thrailkill** has been appointed to the engineering staff of the Washington Water Power Co. Mr. Thrailkill, an electrical engineer, has been with the utilities department of the Washington Department of Public Works for the last six years. He is a graduate of the University of Washington. Richard McKay, electrical engineer who has been serving as district manager for the company at Coeur d'Alene, Idaho, has been transferred to the engineering department headquarters.

▼

¶ **Joseph L. Krah**, former assistant city manager of Pasadena, Calif., has been appointed to a position in the city's light and power department as a part of a program to build up the domestic load and use of electric ranges in Pasadena by C. W. Koiner, city manager. Mr. Koiner on Dec. 1 became Pasadena city manager for the second time, after several years as manager of the Redondo Beach district of the Southern California Edison Co. Prior to his first term as city manager, he was the head of the Pasadena municipal light and power department.

▼

¶ **C. C. Bartlett** has been appointed manager of Redondo Beach district of the Southern California Edison Co. Ltd. by W. L. Frost, Edison company vice-president. Mr. Bartlett succeeds C. W. Koiner, who has resigned to become city manager of Pasadena. Mr. Bartlett formerly was office assistant in the company's new business department, general office.

▼

¶ **Addison B. Day**, president and general manager of the Los Angeles Gas and Electric Corp., has been elected to membership on the executive board of the American Gas Association. He will fill the vacancy on the board created by the election of H. O. Caster, of Henry L. Doherty & Co., to the presidency of the association.

Utah League Elects Officers for 1934

At the annual election of the Electrical League of Utah, held in Salt Lake City December 18, the following officers and board members were elected for the ensuing year: President, R. P. Maybee, Maybee-Shipley Electric Co., vice president, C. B. McKee, Salt Lake Hardware Co., secretary-treasurer, F. S. Cundiff, Mountain States Telephone & Tel. Co. (re-elected), and executive secretary, R. E. Folland (re-elected).

Members of the board of directors were elected as follows: **Wholesalers:** C. B. Hawley, Westinghouse Elec. & Mfg. Co.; S. Rosenfield, United Electric Supply Co.; C. B. McKee, Salt Lake Hardware Co.; J. M. Perlewitz, Graybar Electric Co. **Contractor-Dealers:** George R. Randall, Salt Lake Electric Supply Co.; R. P. Maybee, Maybee-Shipley Electric Co.; H. H. Hall, Capital Electric Co.; J. C. Jacobs, Apex Electric Co. **Manufacturers-Manufacturers' Agents:** L. E. Brown, Westinghouse Elec. & Mfg. Co.; B. C. J. Wheatlake, General Electric Co.; Leo Brandenburger, manufacturers' agent; A. E. Carter, Eureka Vacuum Cleaner Co. **Central Station:** P. M. Parry, R. M. Bleak, M. L. Cummings, Jr., and C. A. Wolfrom, Utah Power & Light Co. **Telephone Co.:** F. S. Cundiff, Mtn. States Telephone & Tel. Co.

▼

¶ **Paul R. Miller**, at one time advertising manager for the Seattle district of the Westinghouse Electric & Mfg. Co. and more recently in charge of sales promotion for the Fobes Supply Co., Seattle distributors for Westinghouse electrical products, has been promoted to the position of sales promotion manager for the Pacific Coast district of the Westinghouse Electric Supply Co. with headquarters in San Francisco.

▼

¶ **William Harvey** was elected president of the Santa Clara Electrical Development League at its annual meeting in December. "Bill" Harvey will be remembered as the winner of the National Cookery Council drive and recently manager of the Mission Electric Co., of San Jose. Al Purdue, lighting salesman of P. G. and E., is secretary of the league. Charles Goodwin, General Electric Supply Corp., was the speaker of the evening, and Bob Prussia presented the Electrical Products Corp.'s new development, the Lumenarc.

▼

¶ **Clyda E. Weems**, of the San Joaquin Light & Power Corp., was named chairman of the women's committee, Public Relations Section, of the Pacific Coast Gas Assn. The Pacific Coast Electrical Assn. this year has not appointed committees, but joint work is being carried on among the women of the former through this new relationship. The little publication, "Public Utility Women," is again being issued under Miss Weems' direction.

▼

¶ **Ernest H. Adams**, vice president and comptroller of the B.C. Electric Railway Co., Vancouver B.C. has been elected president of the Greater Vancouver Publicity Bureau for the ensuing year. He has been a director of the Bureau for several years.

▼ ▼ ▼

Barometer

In contrast with the remainder of the country, the Western states show an appreciable increase in the average of industrial activity during November compared with October, as the figures in the accompanying table indicate. The regional gain of 6 per cent, in which nearly every group participated, brings the present level 19 per cent above last year for the corresponding month. Progress from the 1932 minimum has been rather more steady in this region than in other parts of the country, and the index stands at the highest point since the Spring of 1931.

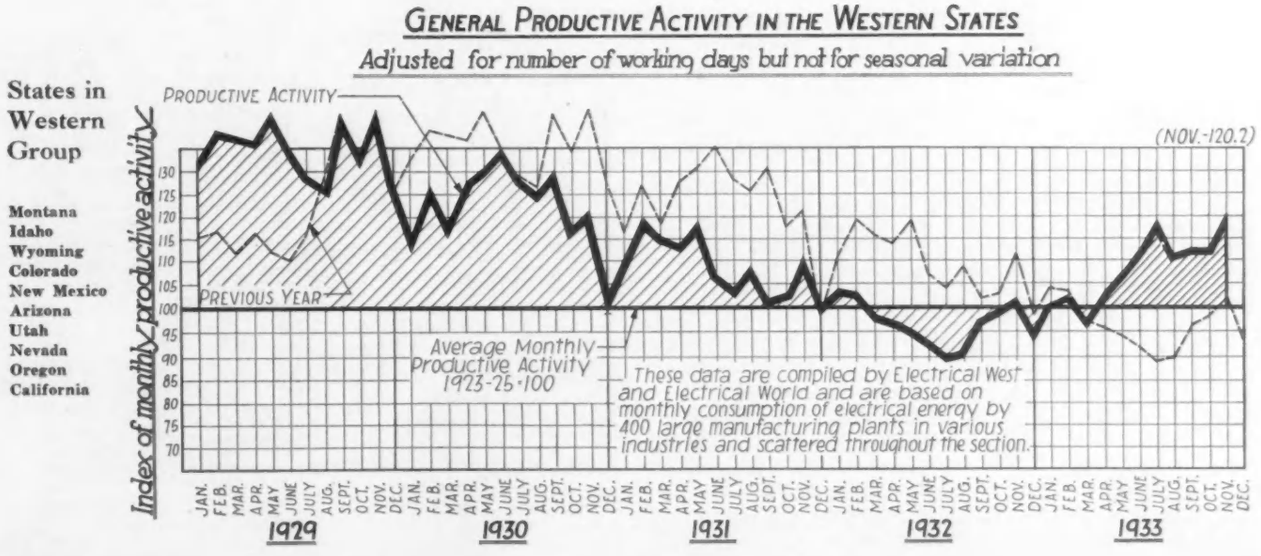
The weakest group continues to be that of the metal-working industries, combined with iron and steel, although it is maintaining the gradual upward movement which has thus far brought a rate of activity 80 per cent greater than a year ago. Further progress was made also in the lumber industry, 16 per cent ahead of last year's figures, and in the stone, clay and glass group, up 59 per cent. A vigorous rise in shipbuilding from October to November, 1932, was matched in part by a smaller increase this year, leaving a net increase of 9 per cent. The firmness in rubber products, compared with a decrease in 1932, also merits attention.

Indexes of Manufacturing Activity in the Western States

(All figures adjusted for number of working days)

	Nov. 1933	Oct. 1933	Sept. 1933	Aug. 1933	Nov. 1932
All Industry	120.2	113.3*	112.8	111.7	101.3
Chemicals	89.4	91.2	85.8	80.0	82.2
Food	118.9	111.3	119.3	115.8	113.0
Metals	77.7	75.3	76.2	71.4	43.1
Lumber	168.0	155.3*	153.1	154.5	145.7
Paper	147.2	145.4	138.2	134.0	141.7
Rubber	97.5	92.5	97.0	108.7	62.5
Shipbuilding	123.0	114.0*	113.0	117.2	113.0
Stone	123.3	118.2	119.6	116.0	77.7

* Revision.



WHERE TO BUY IT IN THE WEST

This guide to products supplements The Manufacturers' Directory, published in the April, 1933 issue. Under the name of the appliance or equipment will be listed the advertisers of that product; by cross-checking with the listings in the directory, the local agents for any item thus can be found. If further information is desired, write to ELECTRICAL WEST, 883 Mission St., San Francisco, Calif. While the same care has been exercised in compiling this guide as in the directory, the publishers assume no responsibility for errors or omissions, but will make such corrections and additions as are requested within the restrictions set.

Air Conditioning
Frigidaire Corp.
Graybar Elec. Co., Inc.

Anchors, Guy
James R. Kearney Corp.

Appliances, Household
Apex Rotarex Mfg. Co.
Chicago Flexible Shaft Co.
Easy Washing Machine Corp.
Edison Gen. Elec. Appliance Co., Inc.
General Elec. Co.
General Elec. Supply Corp.
Graybar Elec. Co., Inc.
The Gute Co., Ltd.
Malleable Iron Range Co.
Mary Dowd Reardon Studios Ltd.
One Minute Washer Co.
Panama Lamp & Com'l Co.
Swartzbaugh Mfg. Co.
Westinghouse Elec. Supply Co.

Bakelite
Electrical Specialty Co. of So. Calif.

Batteries, Storage
Elec. Storage Battery Co.

Boxes
General Cable Corp.
Russell & Stoll Co.
Thomas & Betts Co.

Brackets, Wood
Locust Pin Co.

Bus Fittings
Burndy Eng'g Co.

Cable Accessories
General Cable Corp.
John A. Roebling's Sons Co.

Cables
Crucible Steel Co. of America
General Cable Corp.
General Elec. Co.
Graybar Elec. Co., Inc.
Providence Insulated Wire Co.
John A. Roebling's Sons Co.
Westinghouse Elec. & Mfg. Co.

Carbon Brushes
Morganite Brush Co.

Central Station Equipment
Tom Wood

Chimes
Diamond Elec. Mfg. Co.

Circuit Breakers
General Elec. Co.
Westinghouse Elec. & Mfg. Co.

Cleaners, Vacuum
Apex Rotarex Mfg. Co.
Clements Mfg. Co.
Cramer Elec. Co.

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Parts for all makes
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Los Angeles, Cal.

Coil Winding
Jeffries Transformer Co.

Compounds, Insulating
John C. Dolph Co.
General Cable Corp.

Condensers, Electric
Allis-Chalmers Mfg. Co.
J. G. Corrin
General Elec. Co.
Westinghouse Elec. & Mfg. Co.

Conduit
General Elec. Co.
Steel & Tubes, Inc.
Youngstown Sheet & Tube Co.

Conduit, Underground
Fire Proof Wall Co.
Johns-Manville Corp.

Connectors
Burndy Eng'g Co.
Electroline Co.
James R. Kearney Corp.

Cutouts
James R. Kearney Corp.
Westinghouse Elec. & Mfg. Co.

Distribution Specialties
General Elec. Co.
James R. Kearney Corp.
W. N. Matthews Corp.
Maydwell & Hartzell, Inc.
Waltham, DeWitt & Krusi

Electrodes, Arc Welding
John A. Roebling's Sons Co.

Fans
General Elec. Co.
Westinghouse Elec. & Mfg. Co.

Farm Electrification Equipment
Rural Elec. Products Co.

Fittings, Conduit
Steel & Tubes, Inc.

Fixtures, Lighting
Russell & Stoll Co.
Thomas & Betts Co.

Floodlighting
S & M Lamp Co., Inc.

Gasoline
Associated Oil Co.

Generators
Allis-Chalmers Mfg. Co.
General Elec. Co.
Westinghouse Elec. & Mfg. Co.

Heaters, Air
Edison Gen. Elec. Appliance Co.
Montgomery Bros.
Sandoval Sales Co.
Thermador Elec'l Mfg. Co.
Wesix Inc.
Westinghouse Elec. & Mfg. Co.
Edw. L. Wiegand Co.

Heaters, Water
Clyde L. Chamblin Co.
Edison Gen. Elec. Appliance Co.
Malleable Iron Range Co.
Red Spot Elec. Co.
Sandoval Sales Co.
Thermador Elec'l Mfg. Co.
Wesix Inc.
Westinghouse Elec. & Mfg. Co.

Heating Element—Repair Part
Mend-It Supply Co.
Edw. L. Wiegand Co.

Illuminating Glassware
Inland Glass Works, Inc.

Instruments, Measuring
Elec'l Eng'g Sales Co.
General Elec. Co.
Quality Elec. Co.
Roller-Smith Co.
Westinghouse Elec. & Mfg. Co.

Insulation
Johns-Manville Corp.
C. D. LaMoree

Insulators
Corning Glass Works
Graybar Elec. Co., Inc.
Hemingray Glass Co.
Illinois Elec. Porcelain Co.
Lapp Insulator Co., Inc.
Locke Insulator Corp.
McLaughlin Glass Co.
Owens-Illinois Glass Co.
Westinghouse Elec. & Mfg. Co.

Ironers
Apex Rotarex Mfg. Co.
Easy Washing Machine Corp.
Ironite Ironer Co.
Mary Dowd Reardon Studios

Lamps, Mazda
General Elec. Co.
Westinghouse Lamp Co.

Lamps, Vapor
General Elec. Vapor Lamp Co.
Keese Eng'g Co.

Lamps, Sun
General Elec. Co.

Lighting Equipment
The Portalite Co.
Schleicher & Co., Inc.
Wuelker Reflector Lighting Corp.

Line Material
Maydwell & Hartzell, Inc.

Meters
Eng'g & Gen. Supply Co.
L. A. Nott
Sangamo Elec. Co.
Westinghouse Elec. & Mfg. Co.

Motors
Allis-Chalmers Mfg. Co.
General Elec. Co.
Westinghouse Elec. & Mfg. Co.

Motor Starters
Allis-Chalmers Mfg. Co.
General Elec. Co.
Westinghouse Elec. & Mfg. Co.

Oil, Lubricating
Associated Oil Co.

Oil, Transformer & Switch
Associated Oil Co.

Panel Boards
General Elec. Co.
Westinghouse Elec. & Mfg. Co.

Pins, Wood
Locust Pin Co.

Pole Line Hardware
Associated Wholesale Elec. Co.
General Electric Supply Corp.
Graybar Electric Co., Inc.
Hubbard & Company
Joslyn Co. of Calif.
Locke Insulator Corp.
Maydwell & Hartzell, Inc.
St. Louis Malleable Casting Co.

Public Address Systems
Electro-Acoustics Products Co.
Waltham, DeWitt & Krusi

Public Utilities
Coast Counties Gas & Elec. Co.
Pacific Gas and Elec. Co.
San Diego Cons. Gas & Elec. Co.
San Joaquin Light & Power Corp.
Southern Calif. Edison Co. Ltd.
Southern Sierras Power Co.

Pumps
Pelton Water Wheel Co.

Range Units
L. W. Thompson
Edwin L. Wiegand Co.

Ranges
Edison Gen. Elec. Appliance Co.
Electromaster, Inc.
General Elec. Supply Corp.
Malleable Iron Range Co.
Standard Elec. Stove Co.
Westinghouse Elec. & Mfg. Co.

Refrigerators
California Refrigerator Co.
Frigidaire Corp.
General Elec. Co.
General Elec. Supply Corp.
Graybar Elec. Co., Inc.
Malleable Iron Range Co.
Westinghouse Elec. & Mfg. Co.

Relays
General Elec. Co.
Westinghouse Elec. & Mfg. Co.

Resistors
General Elec. Co.
Westinghouse Elec. & Mfg. Co.

Rheostats
Westinghouse Elec. & Mfg. Co.

Service Organizations
Elec. Refrigeration Bureau
Elec'l Testing Labs.
McGraw-Hill Book Co.
National Elec. Cookery Council
Neal, Stratford & Kerr
Northwest Elec. Light & Power Association
Pacific Coast Elec'l Ass'n
Pacific Coast Elec'l Bureau
Young's Adv. Agency

Signs, High Voltage
W. D. Howze Sales Co.

Steel Products
Pacific Coast Steel Corp.

Switchboards
Allis-Chalmers Mfg. Co.
Diamond Elec. Mfg. Co.

Switches, High Tension
Bowie Switch Co.
James R. Kearney Corp.
General Elec. Co.
W. W. Kirk
C. D. La Moree
Pacific Elec. Mfg. Co.
Westinghouse Elec. & Mfg. Co.

Switches, Meter Test
Meter Devices Co.

Switches—Pressure and Temperature
Garland-Affolter Eng'g Corp.

Switches, Safety
Diamond Elec. Mfg. Co.
Meyers Safety Switch Co., Inc.
Mongerson's Elec'l Mach. Works.
Parker Elec'l Mfg. Corp.

Switches, Time
R. W. Cramer & Co.
Landis & Gyr Co.
Sangamo Elec. Co.
Tork Clocks, Inc.

Switchgear
Allis-Chalmers Mfg. Co.
Delta-Star Elec. Co.
General Elec. Co.
Westinghouse Elec. & Mfg. Co.

Tapes
Johns-Manville Corp.

Terminals, Cable
General Cable Corp.

Tools, Live Line
James R. Kearney Corp.

Towers, Transmission
Pacific Coast Steel Corp.

Transformers
Allis-Chalmers Mfg. Co.
American Transformer Co.
Fred W. Carlson
Electric Agencies
General Elec. Co.
Jeffries Transformer Co.
Pennsylvania Transformer Co.
Sangamo Elec. Co.
Western Transformer Co.
Westinghouse Elec. & Mfg. Co.

Tubing, Elec'l Metallic
Steel & Tubes, Inc.

Turbines
Newport News Shipbuilding & Dry Dock Co.
Pelton Water Wheel Co.

Valves
Pelton Water Wheel Co.

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Arizona—Tucson: Albert Steinfeld & Co. **California**—San Francisco: Electrical Wholesale Co. Los Angeles: Listenwalter & Gough, Fey & Krause, Inc. **Nevada**—Reno: H. E. Saviers & Son. **Utah**—Salt Lake City: Zion's Coop. Mercantile Inst. **Washington**—Tacoma: Home Electric Co. **Honolulu, T.H.**—von Hamm-Young Co., Ltd.

District Representative: WM. P. SWARTZ
629 S. Serrano, Los Angeles, Calif.

Washers, Clothes
Apex Rotarex Mfg. Co.
Easy Washing Machine Corp.
Little Giant, Inc., Ltd.
One Minute Washer Co.
Washing Machine Parts Co.
Washing Machine Service Co.

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Replacement Parts for Washing Machines and Vacuum Cleaners.
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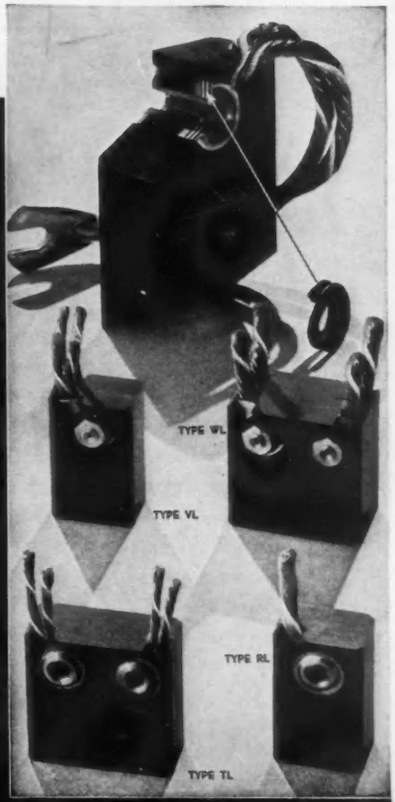
Water Wheels
Pelton Water Wheel Co.

Wire
Driver-Harris Co.
General Cable Corp.
General Elec. Co.
Graybar Elec. Co., Inc.
Indiana Steel & Wire Co.
C. E. Ingalls (Copperweld).
Pacific Wire Rope Co.
John A. Roebling's Sons Co.
Westinghouse Elec. & Mfg. Co.

Wiring Supplies
Graybar Elec. Co., Inc.
J. G. Pomeroy Co.
Russell & Stoll Co.
H. B. Squires Co.
Thomas & Betts Co.
Westinghouse Elec. Supply Co.

For Strength Firmness and Security

"L" TYPE Shunt Connections



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"L" Type connections meet this requirement. They possess the necessary **strength, firmness** and **security** to withstand severe vibration, mechanical shocks and heavy overloads.

A double coil steel spring lock washer is the distinguishing feature of all "L" type connections, RL, TL, VL and WL. This washer maintains uniformly low electrical resistance at the connection by preserving firm and uniform compression on the shunt cable eyelet. It prevents loosening of the connection under severe vibration or extreme changes in temperature.

USE "L" TYPE CONNECTIONS FOR SHUNTED BRUSHES 5/8 INCH THICK OR OVER, ON ALL TYPES OF HEAVY DUTY MOTORS—MILL, TABLE ROLL, SCREW DOWN, MINE LOCOMOTIVE, TRACTION.

NATIONAL CARBON COMPANY, INC.
Carbon Sales Division, Cleveland, Ohio
Unit of Union Carbide UCC and Carbon Corporation
Branch Sales Offices:
New York ◆ Pittsburgh ◆ Chicago ◆ San Francisco

ICE, SLEET . . . . miles of line down . . . . Wire stocks inadequate . . . . Rush shipments imperative . . . . Then, look to Jobbers of *Crapo* Galvanized Wire and Strand!

You can depend upon them in every emergency . . . . and, they in turn, can depend upon us . . . . for, they know from long experience, that RUSH orders received by us in the morning are shipped before night!

Indiana Steel & Wire Co.
Muncie, Indiana

Galvanized Telephone Wire and Steel Strand

Look for the *Crapo* Tag

INDIANA STEEL & WIRE CO. Crapo Galvanized MUNCIE, IND.

Crapo
GALVANIZED PRODUCTS

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What a Year!

1933, the other day, closed up its ledger entry and the new page of 1934 was opened. What a lot of unfinished accounts were carried over on to the new page! Not surprising, stop to think of it, considering how crammed with event and portent old 1933 proved to be. We who have lived through it have lived through one of History's most dynamic years. Think back a moment:

At its beginning the country sank steadily while it awaited a change of administration, culminating in the bank holiday. Then came the inauguration of a second President Roosevelt. Japan took Manchuria as its very own. Hitler became overlord of Germany. Congress moved in unprecedented accord with the President's program. Beer was legalized. Long Beach region suffered a big earthquake. The Akron, whose home was to be in the West, was destroyed in a storm. Japan quit the League, and smashed brazenly into China proper. U. S. dropped off the gold standard. Relief bills passed.

National Industrial Recovery Act became law, and anti-trust laws were thus set aside. Business and industry started a whirlwind of organization. The 18th Amendment fell before successive state elections. Business began to improve. The President signed up every business on a blanket agreement to increase employment and wages. Labor troubles arose. California's private recovery act used up all its money. Code approval slowed down.

Hitler pulled Germany out of the League. Farmers plowed their crops under and took government subsidy. Prohibition finally was repealed. NRA began to receive a wave of criticism. It was stemmed by Roosevelt and by Gen. Johnson. The "sound money" issue arose as inflation was threatened, and the government pegged up the price of gold. Cabinet members and administration leaders resigned on the money issue. Then the furore died down.

Cuba meanwhile had been making more and more revolutions per minute. A war was started and is still going on in South America. Russia was recognized. Japan demanded navy equality, and started a big building program. A California mob lynched two kidnappers. Liquor control became a much muddled problem. Storms swept the Northwest coast. California passed a Water and Power Act. Bryan's dream of free silver was revived as silver was remonetized by the president and gold still further withdrawn by the government from circulation. . . . . And anything might happen between now and press time.

So much for world events. In this industry, too, were no less revolutionary happenings. The government took a wide swing to the left and plunged headlong into vast public power projects. Regulatory commissions abandoned judicial stability to become prosecutors of the utilities. Cooperative associations, in paradoxical fashion, grew in importance in some cases, were wiped out in others. Engineers were relegated into the background and salesmen strove to recapture lost loads by increasing domestic uses.

In even your personal affairs and ours what changes! Truly a year of upside downs. President Roosevelt's new deal proved what ex-president Hoover felt it might be—a complete shuffle of all the cards.

●

Now, 1934. There is only one surety about it—more change, more evolution. This unsettled world is far from calm. The New Deal itself is still in the making. In outline it is still rough, uncertain. Whatever it develops to be, most of us have faith that it will be something better than the past. Birth comes only through labor, and this rebirth of our economic and business life must come, evidently, through work and pain.

Hail then, 1934! We greet you with a mature eye. Whatever you bring, we will somehow take and make the best of it. Our heads may be bloody, but still they are unbowed.

the New ELECTRICAL WEST

Established 1887

With which is consolidated "Journal of Electricity"
Published Monthly at 883 Mission St., San Francisco,
by the McGraw-Hill Company of California.

Member Audit Bureau of Circulations

C. W. Leihy, *Publishing Director*
George C. Tenney, *Editor*
Roy N. Phelan, *Sales Manager*
William A. Cyr, *Associate*

Again IN 1934

THE WELL TIMED PUNCHES WILL COUNT

"Time your advertising to give it a real sales punch. Put all the power you can behind it. Then have the courage and stamina to keep hammering away."

That's fighting talk, but with business still taking it "on the chin" we think it is mighty good advice. And it is advice that every dealer in P. G. and E. territory can easily follow. Why?

Because timing, power, and consistency are present in all P. G. and E. advertising campaigns. And because these campaigns are so designed that dealers may use them as a "backbone" for their own merchandising programs. How?

Advertise regularly in space adjoining ours.

Your advertising is then assured of perfect timing with consumers' seasonal needs. It "packs the wallop" of large space and eye-arresting layout. It is strengthened by consistency and repetition that wears down sales resistance and eventually scores a sales knock-out.

Again, in 1934, this company's advertising will back you up whenever you tie in.

P·G·and E·

PACIFIC GAS AND ELECTRIC COMPANY

Owned · Operated · Managed by Californians

EW 101-134

We're putting the *Smiths* and the *Browns* to work for you!

This month's "Smith and Brown" advertisement sells Home Lighting.

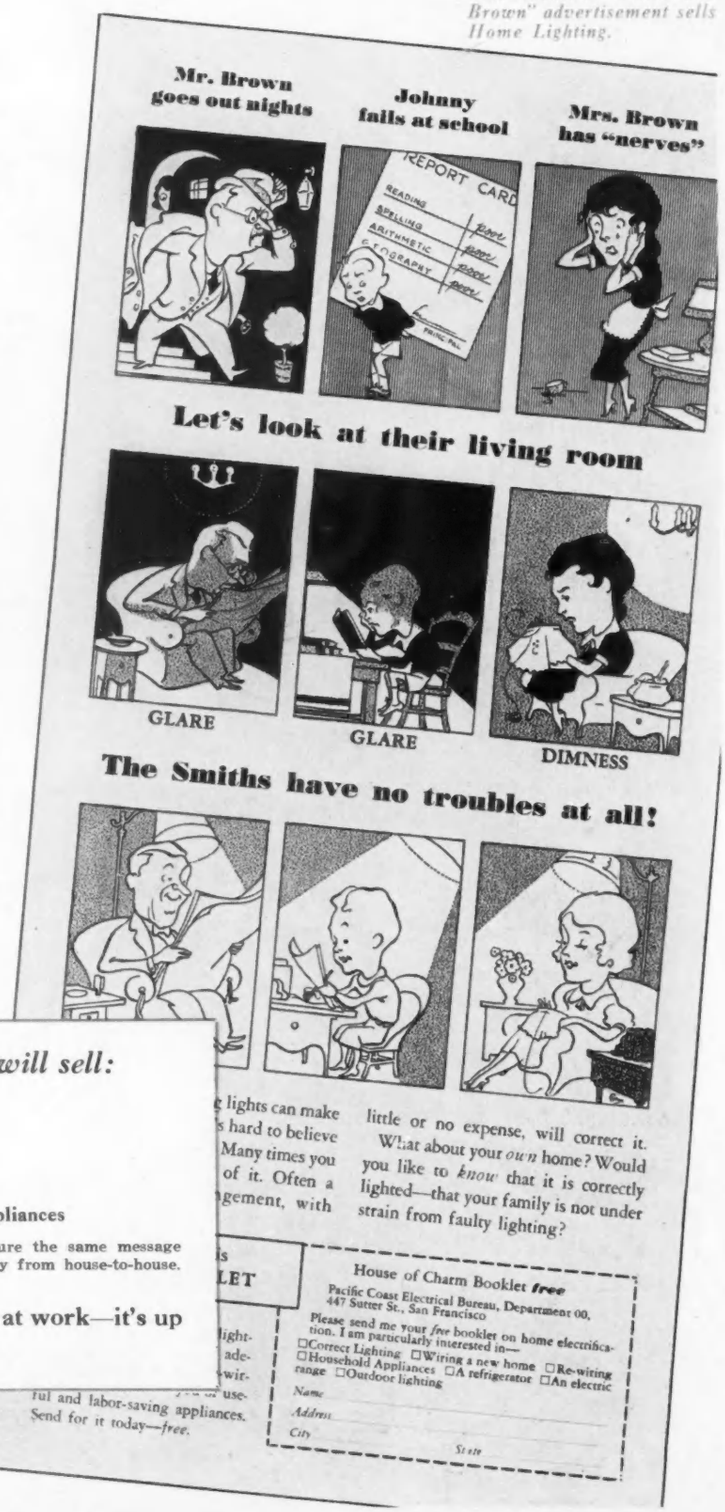
Meet the Smiths and the Browns. You're going to see a lot of them. All through 1934 these two families will be working hard for you in the pages of home magazines.

IN advertisement after advertisement the *Smiths and the Browns* will go into the homes of your prospects—talk directly to them, convince them of the outstanding advantages of the electric appliances and equipment you carry.

Electric ranges . . . refrigerators . . . appliances . . . home and outdoor lighting . . . re-wiring . . . Red Seal wiring for new houses . . . these are the things the *Smiths and the Browns* will sell.

A hard-hitting, year-long campaign! Every advertisement is going to produce *REAL money* for wideawake dealers.

Resolve right now that you are going to get your *full share!*


Mr. Brown goes out nights
Johnny fails at school
Mrs. Brown has "nerves"
REPORT CARD
READING
SPELLING
ARITHMETIC
GEOGRAPHY
POOR!
Let's look at their living room
GLARE
GLARE
DIMNESS
The Smiths have no troubles at all!
lights can make
s hard to believe
Many times you
of it. Often a
gement, with
little or no expense, will correct it.
What about your *own* home? Would you like to *know* that it is correctly lighted—that your family is not under strain from faulty lighting?
House of Charm Booklet *free*
Pacific Coast Electrical Bureau, Department 00, 447 Sutter St., San Francisco
Please send me your *free* booklet on home electrification. I am particularly interested in—
☐Correct Lighting ☐Wiring a new home ☐Re-wiring
☐Household Appliances ☐A refrigerator ☐An electric range ☐Outdoor lighting
Name
Address
City
State
ful and labor-saving appliances. Send for it today—*free.*

What the Smiths and the Browns will sell:

JANUARY—Home Lighting
MARCH—Electric Ranges
MAY—Electric Refrigeration
JULY—Yard Lighting
SEPTEMBER—Red Seal
NOVEMBER—Christmas Gift Appliances

Tie in each month with the current advertising! Feature the same message in your show windows and store. Canvass your territory from house-to-house. Run appropriate local advertising.

The *Smiths and the Browns* are already at work—it's up to you!

PACIFIC COAST ELECTRICAL BUREAU
Department N-1
447 Sutter St., San Francisco